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ABSTRACT

Designed for use with high school juniors, this agribusiness curriculum for city schools contains twenty-four units of instruction in the areas of agricultural processing and companion animals. Among the units included in the curriculum are (1) The Meat Processing Industry, (2) Retail Cuts of Meat, (3) Buying Meat and Portion Control, (4) Dairy Processing, (5) Companion Animal Physiology, (6) Companion Animal Nutrients, and (7) Diseases of Companion Animals. Each instructional unit includes objectives, suggested activities, information sheets, assignment sheets, job sheets, transparency masters, a test, and answers to the test. (LRA)

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ED190828

Nebraska Vocational Agribusiness

Curriculum for City Schools

AGRICULTURAL PROCESSING
COMPANION ANIMALS

A Curriculum Guide
11th Grade

Prepared by
THE DEVELOPMENT OF CURRICULUM MODIFICATIONS FOR
URBAN VOCATIONAL AGRIBUSINESS PROGRAMS IN NEBRASKA
Department of Agricultural Education
Institute of Agriculture and Natural Resources
The University of Nebraska-Lincoln
Lincoln, Nebraska
Dr. Allen G. Blezek, Director
William L. Umbaugh, Curriculum Specialist
1980

For Support Through Authorization of the
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CE 026 334

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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Materials were reviewed and modified and new materials were added, by:

INSTRUCTORS OF VOCATIONAL AGRICULTURE/AGRIBUSINESS

Paul Carlson
Rick Crosier
Don Fox
Ralph Hahn
Richard Meyer
John Newlon
Don Nitchie
Paul Smith
Don Swanstrom
Leroy Tejral
Chris Worm

STATE DEPARTMENT OF EDUCATION VOCATIONAL AGRICULTURE STAFF

B. E. Gingery, Director
Gary Bergman
Glen Nicklas
Dr. Ted D. Ward

TEACHER EDUCATION STAFF DEPARTMENT OF AGRICULTURAL EDUCATION UNIVERSITY OF NEBRASKA–LINCOLN

Dr. Osmund S. Gilbertson
Dr. Allen G. Blezek
Dr. Roy D. Dillon
Dr. James T. Horner
Dr. Herschel Staats
Mr. Lloyd Bell
Mr. William Umbaugh

OTHER CONTRIBUTORS INCLUDED:

Merle Rudebusch, Director, Exemplary Programs, Nebraska
State Department of Vocational Education

Elton Mendenhall, Director, Nebraska Research Coordinating
Unit for Vocational Education, University of Nebraska

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Finally much appreciation goes to William Umbaugh for this project whose untiring efforts have assured its completion.

Allen Blezek *Director*
Nebraska Vocational/Agribusiness
Curriculum For City Schools

INTRODUCTION

Vocational education in agriculture has changed. Fewer students each year are returning to the farm and more are entering fields of related agriculture occupations. Teachers of vocational agriculture are faced with the problem of teaching subject matter areas in which they have limited experience and little or no available instructional materials. This has created a challenge for curriculum personnel. The Nebraska Vocational Agriculture Curriculum Project was designed to accept this challenge.

Units of instruction have been developed for Vocational Agriculture to cover eight sections: Career Orientation, Basic Skills of Agribusiness, Horticulture, Agricultural Processing, Production Agriculture, Companion Animals, Natural Resources, and Agricultural Mechanics. The instructional units are designed to account for seventy percent of an instructor's time in teaching vocational agriculture. The remaining thirty percent is left to the individual instructor according to the demands of the local community.

USE OF THIS PUBLICATION

The approach taken in this publication will be unique and quite new to some educators. Teachers, before attempting to teach from this material, should become familiar with it and should understand the *writer's* ideas. This introduction is for the teacher's benefit and explains the most effective use of the publication.

Instructional Units

Each instructional unit includes objectives, suggested activities, information sheets, assignment sheets, job sheets, transparency masters, a test, and answers to the test.

Objectives (White)

Included in each unit of instruction are measurable objectives. These objectives state the goals of the course in such a way that both teacher and student will know the changes in behavior expected to occur as a result of the instruction. In short, objectives are a means of providing a sense of direction and accomplishment for the student.

The measurable objectives are stated in two forms: Unit Objectives stating the subject matter to be covered in a unit of instruction; Specific Objectives stating the performance of the student in order to reach the unit objective. Specific objectives are most important in regard to teaching the unit. Before attempting to teach a unit, unit and specific objectives must be explained to the student in order to tell him what is expected.

Suggested Activities (White)

Each unit of instruction has a Suggested Activities Sheet outlining steps to follow in accomplishing the specific objectives. The activities relate the duties of the instructor to the particular unit. Duties may vary according to the unit and usually include the following: provide students with information sheet and job sheets, make transparencies, discuss unit and specific objectives, discuss information sheet, and give test. Teachers are encouraged to use any additional activities and means of accomplishing objectives.

Information Sheets (Green)

The information sheets contain essential facts necessary for the teaching of a unit of instruction. These sheets should be given to the student. Information sheets can be reproduced at the local school.

Assignment Sheets (Buff)

Assignment sheets are included in units when necessary. An assignment sheet allows the student to practice a writeen skill, such as calculating board feet, before the evaluation is given.

Job Sheets (Blue)

Job sheets are included in units when necessary. A job sheet gives operations necessary to successfully complete a production job. It contains the name of the job, drawings, materials and tools needed, and procedures for completing a job.

Transparency Masters (White)

Transparency masters are charts, pictures, or illustrations printed for use in making overhead transparencies. These are included in units when necessary. A transparency should be made from the transparency master and be shown on an overhead projector to supplement the information.

Test (Yellow)

A test is included at the close of each unit of instruction to measure the specific objectives

Page Numbering System

Each section in this publication is assigned a specific letter: (A) Plant and Soil Science; (B) Animal Science; (C) Supervised Agricultural Training and Agricultural Business Management; (D) Leadership; (E) Career Selection; (F) Agricultural Mechanics. Pages are numbered consecutively within each section. For example, Career Selection begins with 1-E. If the page is available as a transparency master, TM appears at the bottom of the page.

The following key will help to easily identify each section by color:

White – Objectives, Suggested Activities, Transparency Masters
Green – Information Sheets
Blue – Job Sheets
Buff – Assignment Sheets
Yellow – Test
Pink – Answers to Test

(NOTE: This publication will provide unity of instruction throughout Nebraska in teaching vocational agriculture. The effectiveness of this publication will depend on you as an instructor.)

FOREWORD

This publication is designed to provide basic instruction in Agriculture/Agribusiness (Vocational Agriculture) Education in Nebraska's City Schools.

The problem of what to teach, the resource aids available, and the choices, are problems facing today's Vocational Agriculture/Agribusiness Instructors. This curriculum publication is designed to assist in improving the instructional process and results. In its preparation for use, it has involved many of those who will use the material.

Its purpose is ultimately intended to more adequately prepare the student with knowledge, understanding, and ability in a chosen field.

Appreciation is expressed for the time and effort of the many individuals and groups who assisted in the development of this publication. It is our hope that you may be a more effective teacher through the use of this core curriculum.

M. Anne Campbell
Nebraska Commissioner of Education

Glenn Strain
Assistant Commissioner for Vocational Education

Merle Rudebusch
Director, Exemplary Programs

B. E. Gingery
Director, Agricultural Education

TABLE OF CONTENTS

Vocational Agribusiness II

Section A. Agricultural Processing

Unit I The Meat Processing Industry AP-1-A
Unit II Marketing Livestock and Market Agencies AP-11-A
Unit III Fundamental of Knives AP-39-A
Unit IV Livestock Slaughtering AP-59-A
Unit V Wholesale Cuts and Grades of Beef, Pork, and Lamb AP-85-A
Unit VI Retail Cuts of Meat AP-123-A
Unit VII Meat Inspection and Sanitation AP-141-A
Unit VIII Sausages AP-161-A
Unit IX Packag[illegible]nd Preservation AP-181-A
Unit X Buying Meat and Portion Control AP-203-A
Unit XI Poultry AP-215-A
Unit XII Wool Processing AP-229-A
Unit XIII Dairy Processing

Section B. Companion Animals

Unit I Companion Animal Physiology CA-1-B
Unit II Companion Animal Anatomy CA-21-B
Unit III Breeds of Companion Animals CA-45-B
Unit IV Companion Animal Nutrients CA-75-B
Unit V Composition and Classification of Feeds CA-93-B
Unit VI Maintaining Companion Animal Health CA-125-B
Unit VII Diseases of Companion Animals CA-147-B

Unit VIII	Parasites of Companion Animals	CA-171-B
Unit IX	Companion Animal Reproduction	CA-199-B
Unit X	Grooming of Companion Animals	CA-237-B
Unit XI	Companion Animal Equipment	CA-269-B

THE MEAT PROCESSING INDUSTRY
UNIT I

UNIT OBJECTIVE

After completion of this unit, the student should be able to list reasons for variation in per capita meat consumption, terminal meat marketing centers, and historical factors in the development of the meat industry. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with the meat processing industry with the correct definitions.
2. List three reasons for variation in per capita meat consumption.
3. List five historical factors in the development of the meat processing industry.
4. List the terminal meat marketing centers.

THE MEAT PROCESSING INDUSTRY
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information sheet.

   C. Discuss unit and specific objectives.

   D. Discuss information sheet.

   E. Plan field trip.

   F. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheets.

   C. Participate in field trip.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheet

   C. Test

   D. Answers to test

II. References:

   A. Ziegler, Thomas P. *The Meat We Eat.* Danville, Illinois: The Interstate Printers and Publishers, 1962.

   B. *Meat Evaluation Handbook.* Chicago: National Livestock and Meat Board, 1969.

THE MEAT PROCESSING INDUSTRY
UNIT I

INFORMATION SHEET

I. Terms and definitions

  A. Processing—Turning animals into usable food and fiber products

  B. Consumption—Amount used or eaten

  C. Per capita—Amount per person

  D. Decentralization—Process of moving packing plants from population centers to livestock feeding centers

  E. Terminal—Central location for transportation systems with facilities for handling slaughter and marketing livestock and livestock products

II. Reasons for variation in per capita meat consumption

  A. Consumption per capita decreases as population increases

  B. Average income level

  C. Abundance of food source

  D. Balanced agriculture

III. Historical factors in the development of the meat processing industry

  A. First American meat packer was Captain John Pynchon of Springfield, Massachusetts in 1841

  B. Early markets were mainly for hides along with salt curing and packing

  C. Cincinnati was first commercial packing center

  D. Railroad centers served as major packing centers

  E. Refrigerated railroad car was developed in 1880

  F. Decentralization plants moved closer to animal production to reduce trucking and shrinkage

IV. Terminal meat marketing centers

  A. Sioux Falls, South Dakota

  B. Sioux City, Iowa

INFORMATION SHEET

C. St. Paul, Minnesota

D. Omaha, Nebraska

THE MEAT PROCESSING INDUSTRY
UNIT I
TEST

1. Match the terms on the right to the correct definitions.

   ____ a. Amount used or eaten

   ____ b. Amount per person

   ____ c. Process of moving packing plants from population centers to livestock feeding centers

   ____ d. Turning animals into usable food and fiber products

   ____ e. Central location for transportation systems with facilities for handling slaughter and marketing livestock and livestock products

   1. Processing
   2. Consumption
   3. Per Capita
   4. Decentralization
   5. Terminal

2. List three reasons for variation in per capita meat consumption.

   a.

   b.

   c.

3. List five historical factors in the development of the meat processing industry.

   a.

   b.

   c.

   d.

   e.

4. List the terminal meat marketing centers.

   a.

   b.

   c.

   d.

THE MEAT PROCESSING INDUSTRY
UNIT I

ANSWERS TO TEST

1. a. 2

   b. 3

   c. 4

   d. 1

   e. 5

2. Any three of the following:

   a. Consumption per capita decreases as population increases

   b. Average income level

   c. Abundance of food source

   d. Balanced agriculture

3. Any five of the following:

   a. First American meat packer was Captain John Pynchon of Springfield, Massachusetts in 1841

   b. Early markets were mainly for hides along with salt curing and packing

   c. Cincinatti was first commercial packing center

   d. Railroad centers served as major packing centers

   e. Refrigerated railroad car was developed in 1880

   f. Decentralization plants moved closer to animal production to reduce trucking and shrinkage

4. a. Sioux Falls, South Dakota

   b. Sioux City, Iowa

   c. St. Paul, Minnesota

   d. Omaha, Nebraska

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

UNIT OBJECTIVE

After completion of this unit, the student should be able to distinguish between a terminal market and a livestock auction and should be able to evaluate these markets and select the one that would most nearly fit the student's farming or ranching operation. The student should be able to recognize the benefits of direct marketing and should be able to calculate shrinkage, grade, and yield and be able to apply these to the enterprise being marketed. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of instruction, the student should be able to:

1. Match terms associated with marketing livestock to the correct definition.
2. Name four occupations that are available in the livestock marketing industry.
3. Name seven terminal markets in the United States.
4. Distinguish between a terminal market and a livestock auction.
5. Discuss in a short paragraph the function and the advantages of direct marketing.
6. Discuss in a short paragraph the purpose of the Packers and Stockyards Act.
7. Name three methods of selling cattle at a livestock auction.
8. Name six categories of charges that most livestock auctions use.
9. Name the three types of selling fees and select the one that is used most often by the livestock auction owners.
10. Name the three factors that determine dressing percentage of cattle.
11. Name four factors on which yield grades are based.
12. Name the two types of shrinkage and discuss each one.

13. Name five do's and don'ts for keeping shrinkage to a minimum.

14. Select the number one cause of livestock bruises.

15. Apply the rule for calculating shrinkage.

16. Calculate selling prices of livestock when given the kind of livestock, number, price per hundred weight, and the shrinkage if any.

17. Calculate selling prices of hogs and cattle according to yield and grade.

18. Select the marketing agency that you would use in marketing your livestock and discuss the reasons for your selection.

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

- A. Provide students with objective sheet.
- B. Provide students with information and assignment sheets.
- C. Discuss unit and specific objectives.
- D. Discuss information and assignment sheets with students.
- E. Arrange field trip to observe market agencies in operation.
- F. Give test.

II. Students:

- A. Read objective sheet.
- B. Study information sheets.
- C. Work assignment sheets and turn in to instructor.
- D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objective sheet
- B. Information sheets
- C. Assignment sheets
    1. Assignment Sheet #1—Calculate Shrinkage and Selling Prices
    2. Assignment Sheet #2—Calculate Selling Price Using Grade and Yield
- D. Answers to assignment sheets
- E. Test
- F. Answers to test

II. References:

A. Fowler, Stewart H. *Beef Production in the South.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

B. Ensminger, M. E. *Animal Science*, Danville, Illinois: The Interstate Printers and Publishers, Inc.

C. Ensminger, M. E. *Swine Science.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

D. Bundy, Clarence E. and Ronald V. Diggins. *Swine Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

E. Bundy, Clarence E. and Ronald V. Diggins. *Beef Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

F. *Competitive Livestock Marketing.* College Station, Texas: Agricultural Education Teaching Materials Center.

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and assignment sheets.

   C. Discuss unit and specific objectives.

   D. Discuss information and assignment sheets with students.

   E. Arrange field trip to observe market agencies in operation.

   F. Give test.

II. Students:

   A. Read objective sheet.

   B. Study information sheets.

   C. Work assignment sheets and turn in to instructor.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Assignment sheets

      1. Assignment Sheet #1—Calculate Shrinkage and Selling Prices

      2. Assignment Sheet #2—Calculate Selling Price Using Grade and Yield

   D. Answers to assignment sheets

   E. Test

   F. Answers to test

II. References:

A. Fowler, Stewart H. *Beef Production in the South.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

B. Ensminger, M. E. *Animal Science*, Danville, Illinois: The Interstate Printers and Publishers, Inc.

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E. Bundy, Clarence E. and Ronald V. Diggins. *Beef Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

F. *Competitive Livestock Marketing.* College Station, Texas: Agricultural Education Teaching Materials Center.

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT V

INFORMATION SHEET

I. Terms and definitions

A. Commission--A fee or a charge paid by the seller to an agent for selling services; or a fee charge paid by the purchaser to an agent for the buying of cattle

B. Auction--A market on which livestock are displayed in a ring and offered for sale to all buyers to the highest bidder

C. Commission company--A market agency that receives livestock on consignment to be sold on an agency basis for an established fee

D. Contract selling--The agreement between an owner and a buyer on the price of livestock setting forth the provisions relating to the description, delivery date, weighing point, and delivery point prior to the delivery of the livestock

E. Cooperative marketing--A method of selling livestock in which the service is performed by, or on behalf of, a voluntary association of livestock producers

F. Direct marketing--The transfer of ownership of livestock from the seller to the purchaser without the service of an agency

G. Market agency--An agency engaged in the business of buying or selling livestock on a commission basis

H. Order buyer--A term applied to an individual who purchases livestock for others

I. Shrinkage--The loss in weight of the animals caused by the movement of livestock from one place to another

J. Packer market--A facility operated privately and solely by a packer or slaughterer where livestock is purchased directly from the producer for slaughter

K. Supply--The quantity of a product that is placed on the market at any given time

L. Terminal market--A trading center where facilities are provided for receiving, caring for, and handling livestock; where several selling agencies are in operation; and where the privileges of buying and selling are available to all who wish to use them

INFORMATION SHEET

M. Livestock auction--A trading center where livestock is assembled at regular intervals and sold by public bidding

N. Trader or dealer--An individual, not a market agency, engaged in the business of buying or selling livestock for his own account, usually on a speculative basis

O. Dressing percentage--The percentage yield of chilled carcass in relation to the weight of the animal on foot

P. Carcass grade and yield selling--That type of transaction in which the packer makes a price bid based on the quality of the carcass as well as the carcass yield

II. Occupations available in the market industry

A. Order buyer

B. Packer buyer

C. Grader

D. Inspector

E. Weigh man

F. Sale barn operator or owner

G. Bill-in man

H. Barn or yard man

III. Seven largest terminal markets in the United States (not in order of size)

Omaha
Sioux Falls
St. Paul
Sioux City
National Stockyards
St. Joseph
Kansas City

IV. Markets

A. Terminal

INFORMATION SHEET

1. Livestock assigned to a commission firm
2. Stockyard company furnishes pens, scales, feed, and water
3. Stockyard company charges a fee for these services

   Cattle – $2.25
   Calves (more than 300 lbs.) – $2.95
   Sheep – $1.29
   Hogs – $1.82

   (Basis: Omaha Stockyards - June 1976)

4. Usually sell five days a week

B. Livestock auction

1. Weekly auctions
2. Usually locally owned and operated
3. All classes of livestock sold
4. Selling service paid for by commission based on percentage of selling price

V. Direct marketing

A. Sale of livestock direct to packers and feeders without services of commission men or selling agents

B. Sale prior to delivery on specified price and shrinkage

VI. Packers and Stockyards Act--A Federal statute regulating business practices of those engaged in interstate commerce in livestock and live poultry marketing and meat and poultry packing

A. Passed by Congress in 1921

B. Last amended in 1968

C. Establishes true market value of livestock and poultry

D. Protects consumers against unfair business practices

E. Administered by USDA; covers

1. Registering and bonding

INFORMATION SHEET

2. Facilities and rates

3. Scales and weighing

VII. Methods of selling (Livestock Auction)

A. By the head--Single owner

B. By weight--Single owner

C. By grade--May be more than one owner

(NOTE: Animals are graded, weighed, and sorted into lots of uniform quality and weight and are sold together even if they belong to different owners.)

VIII. Livestock auction charges

A. Commission for selling

B. Yardage

C. Feed

D. Health and brand inspection

E. Insurance

F. Vaccination

G. Brucellosis (Bang's) testing

IX. Types of selling fees (Livestock Auctions)

A. Percentage of gross sales

B. Per head basis--Used most often

1. Slaughter cattle — $3.50
   Breeding cattle — $4.25
   400 lbs. to slaughter — $3.00
   Calves (less than 400 lbs.) — $2.50

2. Hogs — $1.25
   Breeding hogs — $2.75
   Boars — $3.25
   Feeders — $1.20
   Sow and litter — $2.85

INFORMATION SHEET

3. Sheep and goats – $.88

   Basis: Representative Livestock Market - June 1976

C. Combination of both

X. Factors determining dressing percentage

   A. Quality of flesh--both lean and fat

   B. Amount of fill; also stage of pregnancy

   C. Refinement of head, bone, and hide

XI. Factors on which yield grades are based

   A. Amount of external fat

   B. Size of rib eye muscle

   C. Amount of kidney, pelvic, and heart fat

   D. Carcass weight

XII. Types of shrinkage

   A. Excretory--Results from the elimination of feces and urine

   B. Tissue--The actual decrease in the carcass weight of cattle

   C. Calculation example

      1. 3% shrinkage x 480 lbs. of live weight = 14.40

      2. 480 lbs. – 14 lbs. = 466 lbs.

XIII. Do's and don'ts of shrinkage

   A. Do

      1. Condition cattle several days prior to shipment

      2. Plan the shipping program

      3. Sort heifers and steers if possible

      4. Keep cattle off feed and water before shipping

      5. Allow time for fill back if cattle have been in transit more than 12 hours

INFORMATION SHEET

B. Don't

1. Overfill cattle before hauling
2. Overcrowd or underload shipment
3. Delay shipment after cattle are ready for movement
4. Overfill cattle at destination
5. Rush or crowd cattle while loading

XIV. Causes of cattle bruises

A.	Crowding, bumping, and rushing	66%
B.	Trampling	14%
C.	Cane-whip-club	10%
D.	Horned cattle	3%
E.	Other causes	7%

XV. Calculating selling prices

A. Price per hundred weight x weight of live animal

B. Dollar value per head regardless of weight of live animal

C. Example

1. 5 Angus steers average weight 525 lbs., sold for $38.50 per hundred weight

   525 lbs. x 38.50 = $202.12 per head
   $202.12 x 5 head = $1,010.60

2. 5 Hereford steers sold direct, given a 3% shrink, and weighed an average 525 lbs. live weight; sold on a $38.50 market

   525 lbs. – 3% shrinkage = 510 lbs.
   $38.50 per hundred weight x 510 lbs. = $196.35 per head
   $196.35 x 5 head = $981.75

XVI. Grade and yield

A. Cattle

INFORMATION SHEET

1. Live weight is not a factor

2. Carcass weight and the grade the carcass yields

3. Example

   A 1,000 lb. steer hangs up a 560 lb. carcass, given a yield value of 50 cents
   500 lbs. x 50 cents = $280.00

4. Higher or lower grades adjusted up or down

B. Hogs

1. Amount of carcass produced for live weight purchased

2. Example

   Carcass weight ÷ live weight

   142 lbs. carcass ÷ 200 lbs. live weight = 71 percent yield

C. Analysis sheet

(NOTE: Grade and yield at this particular marketing plant are based on the market price of U.S. No. 3 hogs. For each grade above this, the producer is rewarded. An additional reward is given on percent yield above the previous day's plant yield.)

1. The producer is given a 30 percent increase per hundred of live weight for each percent yield above the plant standard hot carcass yield from the previous day

2. It is estimated that a 5 to 7 percent return can be received on gross sales according to yield and grade compared to live market selling price

(Note: The following analysis sheet identifies the price received for 18 head of hogs which were marketed according to yield and grade. Ask the instructor to explain how the yield and grade formula works using the enclosed sheet. It would be very beneficial to compare this load of hogs sold at this price to the same load sold at today's live market price.)

22-A

INFORMATION SHEET

SHIPPER	DATE PURCH.	BASIS OF PURCH.	TYPE OF HOGS
C COLLINS	3-06	GRADE/YIELD	BUTCHERS

LOT NO	ORIGIN BUYER	NO HEAD	TOTAL LIVE WGT	AVG WGT	TOTAL LIVE COST	NO DEAD	NO COND	NO RESOLD	TRANS SHRINK
107	01 1	18	3960	220	988.99				

GR CODE	WT RANGE FROM	WT RANGE TO	NO HEAD	HOT CARC WEIGHT	CARC PRICE	SCHEDULE VALUE
02	191	200	1	140	31.68	44.35
01	201	210	1	144	32.52	46.83
02	201	210	1	146	32.52	47.48
01	211	220	1	151	32.87	49.63
02	211	220	3	461	32.87	151.53
01	221	230	1	157	32.87	51.60
01	231	240	1	166	32.52	53.98
02	231	240	5	834	32.52	271.21
01	241	250	1	179	31.94	57.17
02	241	250	2	350	31.94	111.79
01	251	260	1	182	31.59	57.49
TOTALS			18	2910	32.40	943.06

HOG LOT ANALYSIS

Rodeo

MAURER-NEUER
MEAT PACKERS

GRADE CODE LEGEND

01 SUPERIOR MEAT TYPE
02 DESIRABLE MEAT TYPE
07 BASIC MEAT TYPE
03 AVERAGE
04 OVER FINISHED
05 EXTREMELY OVER FINISHED
06 CULL
10 BOARS & STAGS
21 NUMBER ONE SOW
22 AVERAGE SOW
23 OVER FINISHED SOW
24 EXTREMELY OVER FINISHED SOW
25 MEDIUM SOW
26 CULL SOW

GRADE PROFIT & LOSS COMPUTATION

GR CODE	PERCENT HOT CARC WGT	NO HEAD	HOT CARC WEIGHT	GRADE FACTOR	GRADE MARGIN
01	33.64	6	979		17.71
02	66.35	12	1931		28.22

		AMOUNT	$/CWT.
TOTAL GRADE MARGIN PROFIT/LOSS (–)		45.93	1.16
ACTUAL HOT CARCASS YIELD 73.48	YIELD MARGIN		.60
STANDARD HOT CARC YIELD 71.62	COST MARGIN		
SPECIAL DIFFERENTIAL PLAN C	SORT MARGIN		
TOTAL SCHEDULE MARGIN		23.76	
PROFIT LOSS (–) ON BUY		69.69	1.76
SCHEDULE BASE VALUE -STD-		919.30	23.21
TOTAL LOT LIVE VALUE (DELIVERED TO PLANT)		988.99	24.97

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

ASSIGNMENT SHEET #1—CALCULATE SHRINKAGE AND SELLING PRICES

Work each problem listed below, and when you have finished, turn in to your instructor for his/her evaluation.

1. Suppose you sold 20 head of Angus steers direct to a feeder to be delivered at the local livestock auction for weighing. You agreed on $37.50 hundred weight price and gave a 3% shrinkage. Upon weighing your calves, they averaged 575 lbs. What would be the total dollars received for your steers?

2. You sold 7 Hereford steers to the local livestock auction. The steers averaged 375 lbs. and brought $41.00 per hundred weight. How much money did you receive for the steers?

3. You sold 5 Hereford heifers for $36.60 per hundred weight, and they averaged 560 lbs. What was the amount of money you received?

ASSIGNMENT SHEET #1—CALCULATE SHRINKAGE AND SELLING PRICES

4. Suppose you had the option to sell 150 head of steers either at the local livestock auction or at a terminal market which is 100 miles from your farm. According to the information at the terminal market, steers similar to yours are bringing \$38.75 per hundred weight. You estimated that the steers would weigh 575 lbs. on the average. Last week's local livestock auction was 75 cents lower than the terminal market. Using an estimated shrinkage of 4% on hauling to the terminal market and selling for \$38.75 per hundred weight, would it be more profitable to sell at the livestock auction or at the terminal market? Why?

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

ASSIGNMENT SHEET #2—CALCULATE SELLING PRICE AND USING GRADE AND YIELD

Work each problem listed below, and when you have finished, turn in to your instructor for his/her evaluation.

1. You sold 5 market hogs which graded U.S. No. 1. The hogs averaged 215 lbs. live weight, and the carcasses averaged 148 lbs. What was the percent yield?

2. You sold two Angus steers using a yield grade of 45 cents per pound. The steers average live weight was 950 lbs., and the average carcass weight was 500 lbs. What was the value of the steers?

3. You sold 20 Hereford steers which averaged 750 lbs. live weight and hung up a 400 lb. carcass. Using a yield grade factor of 50 cents per pound, what would be the value of the steers?

   Using a price of $30.50 per hundred weight, what would the steers' value be?

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

ANSWERS TO ASSIGNMENT SHEETS

A. Assignment Sheet #1

1. $4,185.00

2. $1,076.25

3. $1,024.80

4. Local livestock auction

   Because you would be losing 23 lbs. per steer on shrinkage, plus what the trucking would cost

   Terminal market 575 - 23 = 552 x $38.75 = $213.90 per steer or $32,085.00

   Local livestock auction 575 x $38.00 = $218.50 per steer or $32,775.00 for the 150 head

B. Assignment Sheet #2

1. 68%

2. $450.00

3. $5,000.00 yield grade

   $4,575.00 live weight sale

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

TEST

1. Match the terms on the right to the correct definition.

_____a. The loss in weight of the animals caused by the movement of livestock from one place to another

_____b. A trading center where facilities are provided for receiving, caring for, and handling livestock; where several selling agencies are in operation; and where the privileges of buying and selling are available to all who wish to use them

_____c. A market on which livestock is displayed in a ring and offered for sale to all buyers to the highest bidder

_____d. The transfer of ownership of livestock from the seller to the purchaser without the service of an agency

_____e. An agency engaged in the business of buying or selling livestock on a commission basis

_____f. A trading center where livestock is assembled at regular intervals and sold by public bidding

_____g. That type of transaction in which the packer makes a price bid based on the quality of the carcass as well as the carcass yield

_____h. A market agency that receives livestock on consignment to be sold on an agency basis for an established fee

1. Livestock auction
2. Carcass grade and yield selling
3. Auction
4. Commission
5. Market agency
6. Shrinkage
7. Terminal market
8. Order buyer
9. Commission company
10. Direct marketing

___ i. A term applied to an individual who purchases livestock for others

___ j. A fee or a charge paid by the seller to an agent for selling services; or a fee charge paid by the purchaser to an agent for the buying of livestock

2. Name four occupations that are available in the livestock marketing industry.

   a.

   b.

   c.

   d.

3. List the seven largest terminal markets in the United States

   a.

   b.

   c.

   d.

   e.

   f.

   g.

4. Distinguish between a terminal market and a livestock auction. Place "TM" in the blank if the statement describes the operation of a terminal market and "LA" in the blank if the statement describes the operation of a livestock auction.

   ___ a. A livestock market which is usually locally owned and operated, having weekly sales, where livestock is sold to the highest bidder

   ___ b. A livestock market where cattle are assigned to a commission firm and where the stockyards provide the pens, feed, and water for a commission charge

5. Discuss in a short paragraph the function and the advantages of direct marketing.

6. Discuss in a short paragraph the purpose of the Packers and Stockyards Act.

7. Name three methods of selling cattle at a livestock auction.

   a.

   b.

   c.

8. Name six categories of charges that most livestock auctions use.

   a.

   b.

   c.

   d.

   e.

   f.

9. Name the three types of selling fees and select the one that is used most often by the livestock auction owners.

   a.

   b.

   c.

10. Name the three factors that determine dressing percentage of cattle.

    a.

    b.

    c.

11. Name four factors on which yield grades are based.

    a.

    b.

    c.

    d.

12. Name the two types of shrinkage and discuss each one.

    a.

    b.

13. Name five do's and don'ts for keeping shrinkage to a minimum.

    a. Do

        1.
        2.
        3.
        4.
        5.

    b. Don't

        1.
        2.
        3.
        4.
        5.

14. Which of the following contributes to the number one cause of livestock bruises? Circle your answer.

    a. Horned cattle

    b. Trampling

    c. Other causes

    d. Crowding, bumping, and rushing

    e. Cane-whip-club

15. You sold 6 head of steers which averaged 465 lbs. live weight. They brought $37.50 per hundred weight, and you gave a 3% shrinkage. How much money did you receive for your steers?

16. Work the following problems and be sure to show your calculations

    a. You sold 3 market barrows according to yield and grade. The barrows averaged 225 lbs. live weight, and the carcass averaged 168 lbs. What is the percent yield?

    b. You sold a 980 lb. Hereford steer which hung up a 565 lb. carcass. Let's suppose the carcass graded good and received a grade price of 45 cents. What was the value of the steer?

17. Select one of the marketing agencies below that you would use in marketing your livestock and discuss in a short paragraph the reason for your selection.

    a. Terminal markets

    b. Livestock auction

    c. Selling by yield and grade

    d. Direct marketing

MARKETING LIVESTOCK AND MARKET AGENCIES
UNIT II

ANSWERS TO TEST

1. 6 a.
   7 b.
   3 c.
   10 d.
   5 d.
   1 f.
   2 g.
   9 h.
   8 i.
   4 j.

2. Any four of the following:
   a. Order buyer
   b. Packer buyer
   c. Grader
   d. Inspector
   e. Weigh man
   f. Sale barn operator or owner
   g. Bill-in man
   h. Barn or yard man

3. a. Omaha
   b. Sioux City
   c. St. Paul
   d. Sioux Falls

e. National Stockyards

f. St. Joseph

g. Kansas City

4 LA a.

TM b.

5. Discussion should contain such things as no commission to be paid to selling agents; and seller and purchaser can agree on price per hundred weight.

6. Discussion should contain such things as when the act was passed by Congress (1921) and last amended (1968). It regulates business practices of those engaged in interstate commerce in livestock and poultry marketing. The act is administered by the USDA and covers registering and bonding, facilities and rates, and scales and weighing.

7. a. By the head

b. By weight

c. By grade

8. Any six of the following:

a. Commission for selling

b. Yardage

c. Feed

d. Health and brand inspection

e. Insurance

f. Vaccination

g. Brucellosis (Bang's) testing

9. a. Percentage of gross sales

b. Per head basis--This rate is the one used most often

c. Combination of both

10. a. Quality of flesh

b. Amount of fill; also stage of pregnancy

c. Refinement of head, bone, and hide

11. a. Amount of external fat

b. Size of rib eye muscle

c. Amount of kidney, pelvic, and heart fat

d. Carcass weight

12. a. Excretory--Results from the elimination of feces and urine

b. Tissue--The actual decrease in the carcass weight of cattle

13. Do

a. Condition cattle several days prior to shipment

b. Plan the shipping program

c. Sort heifers and steers if possible

d. Keep cattle off feed and water before shipping

e. Allow time for fill back if cattle have been in transit more than 12 hours

Don't

a. Overfill cattle before hauling

b. Overcrowd or underload shipment

c. Delay shipment after cattle are ready for movement

d. Overfill cattle at destination

e. Rush or crowd cattle while loading

14. d. Crowding, bumping, and rushing

15. $1,014.72

16. a. 74%

b. $254.25

17. To be evaluated by the instructor.

FUNDAMENTALS OF KNIVES
UNIT III

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify basic parts and types of knives and knife sharpening tools and list the factors in selecting a knife handle and blades. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with knives with the correct definitions.
2. Identify the seven parts of the knife.
3. Identify the six basic household knives.
4. Identify three tools used to sharpen knives.
5. Select from a list factors to consider when selecting a knife handle.
6. List the two types of tangs.
7. Select from a list factors to consider when selecting knife blades.
8. Demonstrate the ability to sharpen a knife.

FUNDAMENTALS OF KNIVES
UNIT III
SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information and job sheets.

  C. Make transparencies.

  D. Discuss unit and specific objectives.

  E. Discuss information sheet.

  F. Demonstrate and discuss procedures outlined in the job sheet.

  G. Give test.

II Students:

  A. Read objective sheet.

  B. Study information sheets.

  C. Demonstrate the ability to accomplish the procedure outlined in the job sheet.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheet

  C. Transparency masters

    1. TM 1—Parts of the Knife

    2. TM 2—Basic Household Knives

    3. TM 3—Basic Household Knives (continued)

  D. Job sheet#1—Sharpen a Knife

  E. Test

  F. Answers to test

II. References:

A. *All About Knives.* Chicago: EKCO-Flint Division, EKCO Products, Co., 1959.

B. *Butcher Knives.* Kansas City, Missouri: Koch Supplies, 1952.

C. Coulthard, Kay C. "Kitchen Knives—The Basic Six", *Family Circle,* 1965.

D. *Cutco–World's Finest Cutlery.* New Kensington, Pennsylvania: Wear-ever Aluminum, Inc., Cutco Division, 1960.

E. *Dealer's Price List.* Abilene, Kansas: Twin A.A. Cutlery Co., 1976.

F. Henrickson, R. L., and Newell, George. *Putting an Edge on Knives.* Stillwater: Oklahoma State University, Extension Facts No. 9411, 1976.

G. *New Handles Solved.* Southbridge, Massachusetts: Russel Harrington Cutlery, Inc., 1976.

H. *The New Triton Honing Steel.* Chicago: Chicago Cutlery, Co , 1970.

I. Richmond, W. L., *Knives.* Starkville, Mississippi: Extension Service, Mississippi State University, State College, Cir. 143, 1947.

FUNDAMENTALS OF KNIVES
UNIT III
INFORMATION SHEET

I. Terms and definitions

A. Tang—Section of the steel blade which fits inside the handle

B. Paring knife—Designed to utilize maximum blade area with a minimum of hand tension

C. Utility knife—Used among homemakers for slicing fruits and vegetables

D. Heavy duty knife—Used to dejoint chicken, clean fish, and prepare roasts

E. Chef's knife—Designed for chopping or dicing vegetables or fruits

F. Slicer—Serves as bread or cake knife adequate for many roast meat items

G. Carving knife—Used to carve rib roasts, hams, or turkeys

H. Triton hone—Used to sharpen knives

I. Smooth steel—Provides a means of keeping a straight knife edge

J. Carbonized stone—Oil stone used to sharpen knives

II. Parts of the knife (Transparency 1)

A. Point

B. Back

C. Rivets

D. Cutting edge

E. Heel

F. Tang

G. Butt

III. Basic household knives (Transparencies 2 and 3)

A. Paring knife

B. Utility knife

C. Heavy duty knife

INFORMATION SHEET

D. Chef's knife

E. Slicer

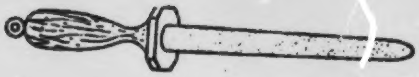
F. Carving knife

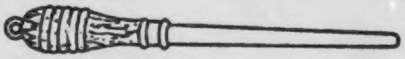
IV. Tools to sharpen knives

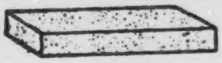
A. Triton

B. Smooth steel

C. Carborundum stone







V. Selecting a knife handle

A. Ease of sanitation

B. Safety grip

C. Balance

D. Resistance to strong detergents

E. Action of automatic dishwashers

VI. Types of tangs

A. Short

B. Full

VII. Selecting a knife blade

A. Longer than food it cuts

B. Wider blades wear longer

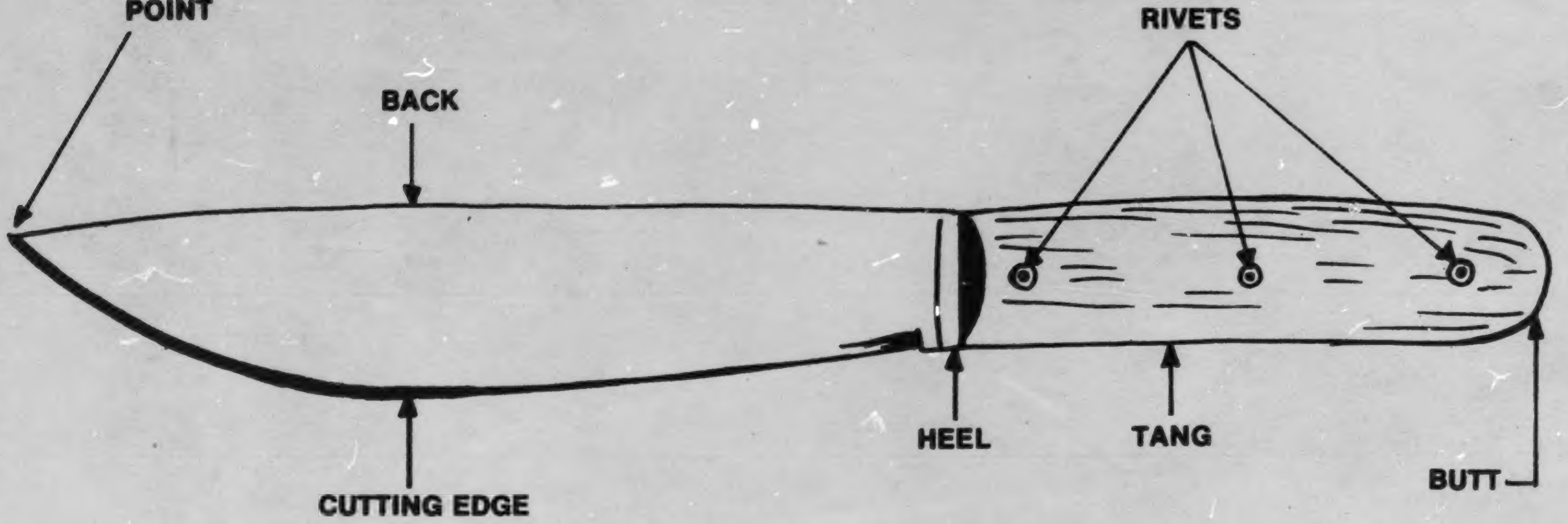
C. Wider blades cause surface drag against food

D. Narrow blades easier to make curve cuts Example: Boning

E. Narrow blades more flexible

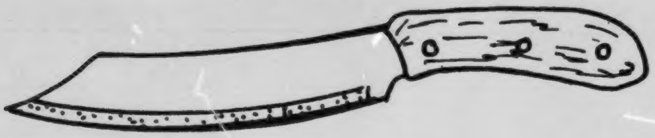
F. Curved blades cut with less pressure

PARTS OF THE KNIFE

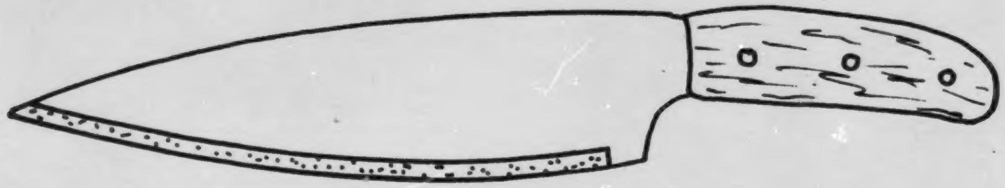

POINT
BACK
RIVETS
HEEL
TANG
BUTT
CUTTING EDGE

BASIC HOUSEHOLD KNIVES

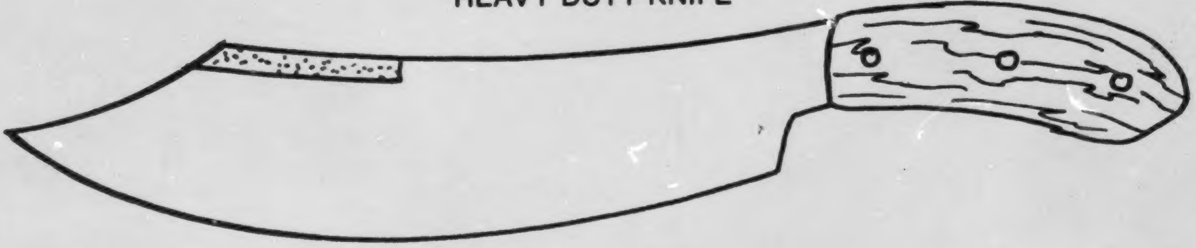
PARING KNIFE



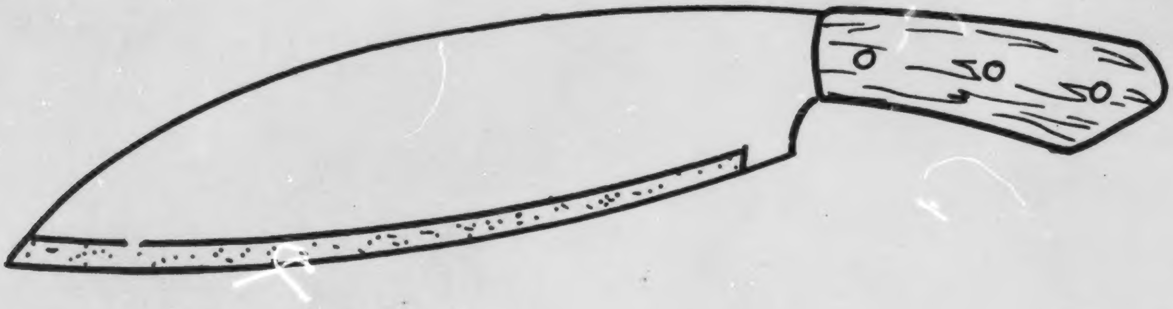
UTILITY KNIFE

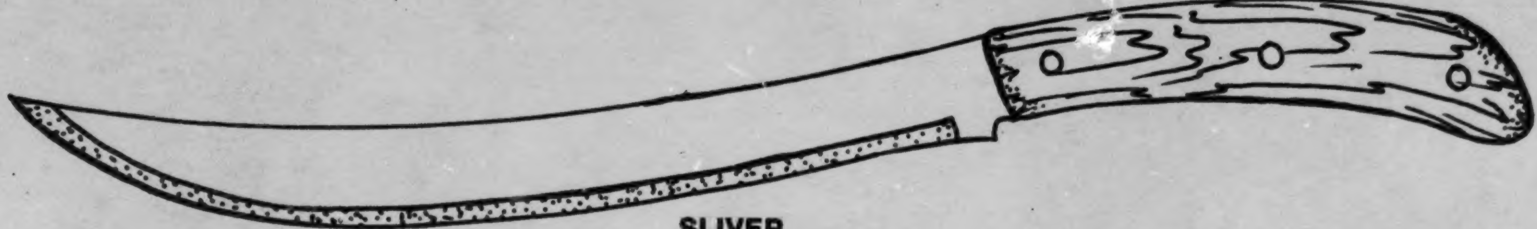


HEAVY DUTY KNIFE

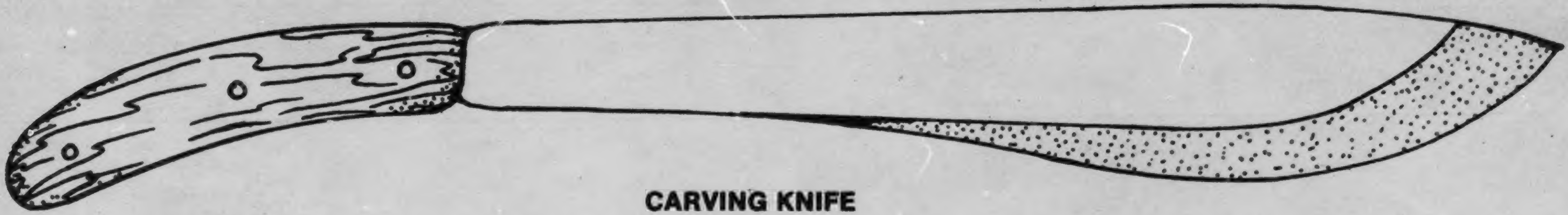


CHEF'S KNIFE





SLIVER



CARVING KNIFE

FUNDAMENTALS OF KNIVES
UNIT III

JOB SHEET #1—SHARPEN A KNIFE

I. Equipment

  A. Knife

  B. Steel

  C. Carborundum stone

II. Procedure

  A. Hold handle of knife in right hand

  B. Rest left hand in center of blade

  C. Place heel of blade on stone

  D. Pass blade over stone using uniform pressure

  E. Repeat procedure with other side of blade

  F. Straighten blade with smooth steel when desired edge is obtained

FUNDAMENTALS OF KNIVES
UNIT III
TEST

1. Match the terms on the right to the correct definitions.

____ a. Designed to utilize maximum blade area with a minimum of hand tension

____ b. Used to sharpen knives

____ c. Used among homemakers for slicing fruits and vegetables

____ d. Provides a means of keeping a straight knife edge

____ e. Oil stone used to sharpen knives

____ f. Designed for chopping or dicing vegetable or fruits

____ g. Used to carve rib roasts, hams, or turkeys

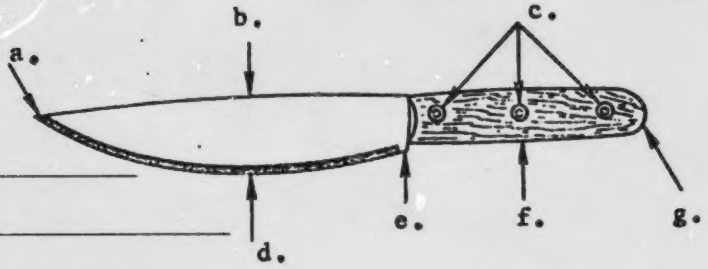
____ h. Serves as a bread or cake knife adequate for many roast meat items

____ i. Used to dejoint chicken, clean fish, and prepare roasts

____ j. Section of the steel blade which fits inside the handle

1. Tang
2. Paring knife
3. Utility knife
4. Heavy duty knife
5. Chef's knife
6. Slicer
7. Carving knife
8. Triton hone
9. Smooth steel
10. Carbonized stone

2. Identify the seven parts of the knife by writing the correct names in the blanks provided below.



a. ______________________

b. ______________________

c. ______________________

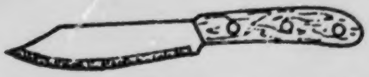
d. ______________________

e. ______________________

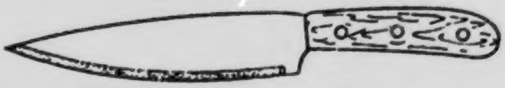
f. ______________________

g. ______________________

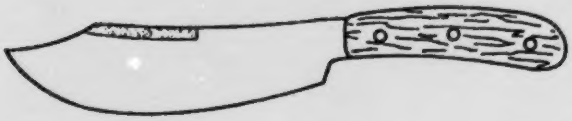
3. Identify the six basic household knives by writing the correct names in the blanks provided.



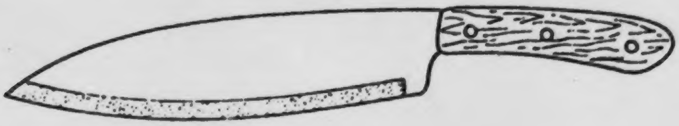
a. ______________________________



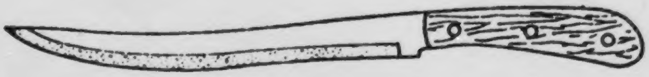
b. ______________________________



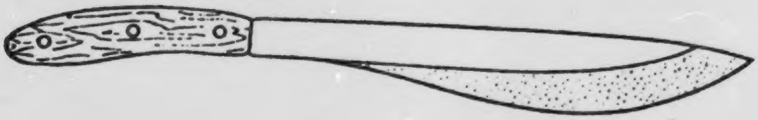
c. ______________________________



d. ______________________________

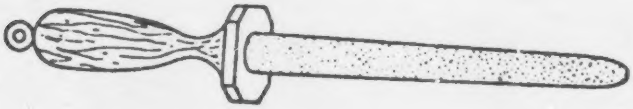


e. ______________________________

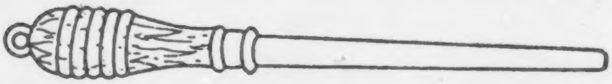


f. ______________________________

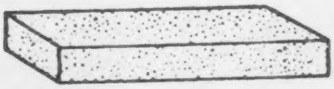
4. Identify the tools below to sharpen knives by writing the correct names in the blank provided.



a. ____________________________



b. ____________________________



c. ____________________________

5. Select from the list below five factors to consider when selecting a knife handle. Place an "X" in the correct blanks.

___ a. Safety grip

___ b. Color

___ c. Balance

___ d. Ease of sanitation

___ e. Knife design

___ f. Action of automatic dishwashers

6. List two types of tangs.

a.

b.

7. Select from the list below factors to consider when selecting a knife blade. Place an "X" in the correct blanks.

____ a. Longer than food it cuts

____ b. Wider blades cut with less pressure

____ c. Narrow blades more flexible

____ d. Wider blades easier to separate bones

8. Demonstrate the ability to sharpen a knife.

FUNDAMENTALS OF KNIVES
UNIT III
ANSWER TO TEST

1. a. 2
   b. 8
   c. 3
   d. 9
   e. 10
   f. 5
   g. 7
   h. 6
   i. 4
   j. 1

2. a. Point

   b. Back

   c. Rivets

   d. Cutting edge

   e. Heel

   f. Tang

   g. Butt

3. a. Paring knife

   b. Utility knife

   c. Heavy duty knife

   d. Chef's knife

   e. Slicer

   f. Carving knife

4. a. Triton

   b. Smooth steel

   c. Carborundum stone

5. a,c,d,f

6. a. Short

   b. Full

7. a,c

8. Performance skill evaluated to satisfaction of instructor

LIVESTOCK SLAUGHTERING
UNIT IV

UNIT OBJECTIVE

After completion of this unit, the student should be able to arrange in order the steps in slaughtering livestock, list methods of stunning, and list the areas of the processing plant. The student should be able to cut beef, lamb, and pork carcasses into the major retail cuts. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with slaughtering livestock with the correct definitions.
2. Arrange in order the twelve steps in slaughtering a beef animal.
3. Arrange in order the seven steps in slaughtering a hog.
4. Arrange in order the five steps in slaughtering a lamb.
5. List the three methods of stunning.
6. List the seven federal meat processing plant safety requirements.
7. List the seven processing plant areas.
8. Describe processing plant safety.
9. Describe kosher meat slaughtering.
10. Demonstrate the ability to:
    a. Render lard.
    b. Fabricate beef forequarter.
    c. Fabricate beef hindquarter.
    d. Fabricate lamb carcass.
    e. Fabricate pork carcass.

LIVESTOCK SLAUGHTERING
UNIT IV
SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information and job sheets.

  C. Discuss unit and specific objectives.

  D. Discuss information sheet.

  E. Demonstrate and discuss procedures outlined in the job sheets.

  F. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheets.

  C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Job sheets

    1. Job Sheet #1—Render Lard

    2. Job Sheet #2—Fabricate Beef Forequarter

    3. Job Sheet #3—Fabricate Beef Hindquarter

    4. Job Sheet #4—Fabricate Lamb Carcass

    5. Job Sheet #5—Fabricate Pork Carcass

  D. Test

  E. Answers to test

II. References:

A. Ziegler, Thomas P. *The Meat We Eat.* Danville, Illinois: The Interstate Printers and Publishers, 1962.

B. *Cuts of Meat: How You Can Identify.* Chicago: Swift and Company, Agricultural Research Department.

LIVESTOCK SLAUGHTERING
UNIT IV

INFORMATION SHEET

I. Terms and definitions

A. Kosher—Hebrew word meaning "fit"

B. Ante-mortem inspection—Animal inspection just before slaughter

C. Post-mortem inspection—Animal inspection after slaughter

D. Wholesome Meat Act of 1967—Protected wholesomeness of each American's poultry and meat supply

E. Stunning—Killing the animal

F. Sticking—Cutting the animal's jugular vein

G. Heading—Opening hide from horn to nostril and skinning out the front of face

H. Shanking—Opening hide on rear of foreshank and rear of hindshank

I. Siding—Removing hide from side of animal

J. Opening—Opening body cavity

K. Rumping—Removing hide from rump

L. Eviscerating—Removing internal organs

M. Backing—Removing hide from back of animal

N. Halfing—Splitting animal into two sides

O. Hindquarter—Half of side behind thirteenth rib

P. Forequarter—Half of side in front of twelfth rib

Q. Ribbing—Separating forequarter from hindquarter

R. Shohet—Person who kills animals for kosher meat

S. Chalet—Sixteen inch knife used to kill animals for kosher meat

INFORMATION SHEET

T. Backing—Removing hide from outside round

U. Washing—Washing off both inside and outside of carcass

V. Shrouding—Cloth used to absorb blood and smooth, external fat covering

W. Scalding—After stunning, hogs are dipped in hot water to help remove hair

II. Steps in slaughtering a beef animal

A. Holding off feed 24 to 48 hours before slaughter

B. Stunning

C. Sticking

D. Heading

E. Shanking

F. Siding

G. Opening

H. Rumping

I. Eviscerating

J. Bucking

K. Halfing

L. Washing and shrouding

III. Steps in slaughtering a hog

A. Holding off feed 16 to 24 hours before slaughter

B. Immobilizing

C. Sticking

D. Scalding and scraping

E. Removing head

F. Eviscerating

G. Splitting

INFORMATION SHEET

IV. Steps in slaughtering a lamb

   A. Holding off feed 24 hours before slaughter

   B. Stunning

   C. Sticking

   D. Pelting

   E. Eviscerating

V. Stunning methods

   A. Mechanical

      Examples: Penetrating, Concussion

   B. Chemical

      Example: Carbon dioxide (CO_2)

   C *Electrical*

      Example: Probe

VI. Federal meat processing plant safety requirements

   A. Ante- and post-mortem inspections

   B. Sanitation

   C. Reinspection

   D. Potable water

   E. Sewage and waste disposal

   F. Pest control

   G. Condemned and inedible material control

VII. Processing plant areas

   A. Receiving area

   B. Killing floor

   C. Splitting

   D. Eviscerating

   E. Chilling

INFORMATION SHEET

  - F. Cutting
  - G. Transport dock
- VIII. Processing plant safety
  - A. Keep knives clean
  - B. Store knife handles all in same direction
  - C. Hold knife firmly with blade down
  - D. Allow knife to fall if dropped
  - E. No horseplay
  - F. Allow adequate workspace
  - G. Keep floors clean
  - H. Don't force equipment
- IX. Kosher meat slaughtering
  - A. Animal killed by shohet
  - B. Sixteen-inch chalet knife used
  - C. Blade checked before and after killing
  - D. Blade sharpened after each killing
  - E. Steel not permitted
  - F. Cattle slaughtered one at a time

LIVESTOCK SLAUGHTERING
UNIT IV

JOB SHEET #1—RENDER LARD

I. Equipment

  A. Stove

  B. Large pot

  C. Knife

  D. Lard

  E. Water

  F. Cheesecloth

  G. Lard container

  H. Hydrogenated vegetable shortening

II. Procedure

  A. Cut lard into pieces

  B. Add water to pot

  (NOTE: Cover bottom.)

  C. Boil slowly

  (NOTE: Do not exceed 240°F.)

  D. Stir occasionally

  E. Boil till remains are gait brown

  F. Strain liquid through cheesecloth

  G. Add 2 to 3 lbs. of hydrogenated vegetable shortening to 50 lbs. of lard

LIVESTOCK SLAUGHTERING
UNIT IV

JOB SHEET #2—FABRICATE BEEF FOREQUARTER

I. Equipment

  A. Meat saw

  B. Knife

II. Procedure

  A. Place forequarter on table ribs up

  B. Remove peritoneum and diaphragm muscle

  C. Separate fifth and sixth ribs

  D. Cut straight across ribs ten inches from chin bone

  E. Separate brisket and foreshank from chuck, cutting perpendicular to original cut made between sixth and fifth ribs

LIVESTOCK SLAUGHTERING
UNIT IV

JOB SHEET #3—FABRICATE BEEF HINDQUARTER

I. Equipment

   A. Knife

   B. Meat saw

II. Procedure

   A. Place hindquarter on table outside down

   B. Cut from thirteenth rib to inside of round

   C. Remove udder or cod fat

   D. Cut, separating fifth sacral vertebrae and first coccygeal vertebrae

   E. Continue cutting to anterior (back) of aitch bone

   F. Continue cutting perpendicular to outer skin

   G. Separate sirloin from short loin, separating fifth and sixth lumbar vertebrae

LIVESTOCK SLAUGHTERING
UNIT IV

JOB SHEET #4—FABRICATE LAMB CARCASS

I. Equipment

- A. Knife
- B. Meat saw

II. Procedure

- A. Lay carcass on its side on table
- B. Cut from cod or udder region forward in straight line
- C. Saw through rib and humerus
- D. Repeat on opposite side
- E. Separate breast and flank
- F. Separate breast
- G. Remove kidneys and kidney fat
- H. Remove neck at junction of shoulder
- I. Separate fifth and sixth ribs
- J. Separate last two ribs of back
- K. Saw through lumbar vertebrae
- L. Remove excessive fat

LIVESTOCK SLAUGHTERING
UNIT IV

JOB SHEET #5—FABRICATE PORK CARCASS

I. Equipment

- A. Table
- B. Apron
- C. Boning knife

II. Procedures

- A. Cut perpendicular on the outer skin parallel to the shank bone
- B. Remove foot above hock joint
- C. Remove tail bone and tail
- D. Remove fat on the face and pelvic area of ham
- E. Separate shoulder cutting perpendicular to outer skin

  (NOTE: Begin not more than 1 inch posterior to the elbow joint.)
- F. Remove neckbones, rib, breast bones cartilage intercostal meat and breast bones
- G. Remove foot above the knee joint
- H. Remove jowl
- I. Cut perpendicular to the outer skin leaving not less than 1 or more than 2 inches of blade bone
- J. Remove interior fat
- K. Cut perpendicular not more than 1½ inches beyond the outer most curvatine of the scribe line

LIVESTOCK SLAUGHTERING
UNIT IV
TEST

1. Match the terms on the right to the correct definitions.

____ a. Hebrew word meaning "fit"

____ b. Killing the animal

____ c. Opening hide from horn to nostril and skinning out the front of face

____ d. Cutting the animal's jugular vein

____ e. Opening body cavity

____ f. Animal inspection after slaughter

____ g. Removing hide from back of animal

____ h. Removing hide from side of animal

____ i. Half of side in front of twelfth rib

____ j. Removing internal organs

____ k. Separating forequarter from hindquarter

____ l. Animal inspection just before slaughter

____ m. Person who kills animals for kosher meat

____ n. Half of side behind thirteenth rib

____ o. Opening hide on rear of foreshank and rear of hindshank

____ p. Protected wholesomeness of each American's poultry and meat supply

____ q. Splitting animal into two sides

____ r. Removing hide from rump

____ s. Sixteen inch knife used to kill animals for kosher meat

____ t. Cloth used to absorb blood and smooth external fat covering

____ u. Removing hide from outside round

1. Kosher
2. Ante-mortem inspection
3. Post-mortem inspection
4. Wholesome Meat Act of 1967
5. Stunning
6. Sticking
7. Heading
8. Shanking
9. Siding
10. Opening
11. Rumping
12. Eviscerating
13. Backing
14. Halfing
15. Hindquarter
16. Forequarter
17. Ribbing
18. Shohet
19. Chalet
20. Backing
21. Washing
22. Shrouding
23. Scalding

____ v. Washing off both inside and outside of carcass

____ w. After stunning, hogs are dipped in hot water to help remove hair

2. Arrange in order the twelve steps in slaughtering a beef animal. Place an "1" in front of the first step, a "2" in front of the second, and so on.

____ a. Rumping

____ b. Holding off feed 24 to 48 hours before slaughter

____ c. Shanking

____ d. Heading

____ e. Eviscerating

____ f. Washing and shrouding

____ g. Bucking

____ h. Stunning

____ i. Siding

____ j. Halfing

____ k. Sticking

____ l. Opening

3. Arrange in order the seven steps in slaughtering a hog. Place a "1" in front of the first step, a "2" in front of the second, and so on.

____ a. Removing head

____ b. Immobilizing

____ c. Sticking

____ d. Hold off feed 16 to 24 hours before slaughter

____ e. Scalding and scraping

____ f. Eviscerating

____ g. Splitting

4. Arrange in order the five steps in slaughtering a lamb. Place a "1" in front of the first step, a "2" in front of the second, and so on.

____ a. Stunning

____ b. Sticking

____ c. Eviscerating

____ d. Pelting

____ e. Holding off feed 24 hours before slaughter

5. List the three methods of stunning.

   a.

   b.

   c.

6. List seven federal meat processing plant safety requirements.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

7. List seven processing plant areas.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

8. Describe processing plant safety.

9. Describe kosher meat slaughtering.

10. Demonstrate the ability to:

   a. Render lard.

   b. Fabricate beef forequarter.

   c. Fabricate beef hindquarter.

   d. Fabricate lamb carcass.

   e. Fabricate pork carcass.

LIVESTOCK SLAUGHTERING
UNIT IV
ANSWERS TO TEST

1. a. 1
   b. 5
   c. 7
   d. 6
   e. 10
   f. 3
   g. 13
   h. 9
   i. 16
   j. 12
   k. 17
   l. 2
   m. 18
   n. 15
   o. 8
   p. 4
   q. 14
   r. 11
   s. 19
   t. 22
   u. 20
   v. 21
   w. 23
2. a. 8
   b. 1
   c. 5
   d. 4
   e. 9
   f. 12
   g. 10
   h. 2
   i. 6
   j. 11
   k. 3
   l. 7
3. a. 5
   b. 2
   c. 3
   d. 1
   e. 4
   f. 6
   g. 7

4. a. 2
   b. 3
   c. 5
   d. 4
   e. 1
5. a. Mechanical
   b. Chemical
   c. Electrical
6. a. Ante- and post-mortem inspections
   b. Sanitation
   c. Reinspection
   d. Potable water
   e. Sewage and waste disposal
   f. Pest control
   g. Condemned and inedible material control
7. a. Receiving area
   b. Killing floor
   c. Splitting
   d. Eviscerating
   e. Chilling
   f. Cutting
   g. Transport dock

8. De-scription should include:
    a) Keep knives clean
    b) Store knife handles all in same direction
    c) Hold knife firmly with blade down
    d) Allow knife to fall if dropped
    e) No horseplay
    f) Allow adequate workspace
    g) Keep floors clean
    h) Don't force equipment
9. Description should include:
    a) Animal killed by shohet
    b) Sixteen-inch chalet knife used
    c) Blade checked before and after killing
    d) Blade sharpened after each killing
    e) Steel not permitted
    f) Cattle slaughtered one at a time
10. **Performance skill evaluated to satisfaction of instructor.**

WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V

UNIT OBJECTIVE

After completion of this unit, the student should be able to match terms associated with wholesale cuts and grades of beef, pork, and lamb to the proper definition. The student should be able to identify, by labeling, the wholesale cuts of beef, pork, and lamb. The student should be able to distinguish between the different grades for beef, pork, and lamb, and should also be able to compute yield grade for beef and lamb. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

Specific Objectives

After the completion of this unit, the student should be able to:

1. Match seven terms associated with the wholesale cuts and carcass evaluation of beef, pork, and lamb carcasses to the correct definitions.
2. Identify the wholesale cuts of beef from a drawing.
3. Match the degrees of marbling with the examples.
4. List the quality grades of beef.
5. Describe what beef quality grades are based on.
6. Demonstrate the ability to compute beef cattle yield grades.
7. Identify the wholesale cuts of pork from a drawing.
8. List the quality grades of pork.
9. Demonstrate the ability to determine U.S.D.A. pork grades.
10. Identify the wholesale cuts of lamb from a drawing.
11. Rank in order of importance the quality grades for lamb.
12. Demonstrate the ability to compute lamb yield grades.
13. Write the average dressing percentages for beef, pork, and lamb.

WHOLESALE CUTS AND GRADES OF BEEF, PORK AND LAMB
UNIT V

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information sheets.

  C. Make transparencies.

  D. Discuss unit and specific objectives.

  E. Discuss information sheets.

  F. Plan a field trip to a slaughter plant or wholesale meat plant.

  G. Give test.

II. Students:

  A. Read objective sheet.

  B. Study information sheet.

  C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objectives

  B. Information sheets

  C. Transparency masters

    TM 1 - Wholesale cuts of beef

    TM 2 - Degrees of marbling

    TM 3 - Wholesale cuts of pork

    TM 4 - Wholesale cuts of lamb

D. Test

E. Answers to test

II. References:

A. *The Meat We Eat*, Ziegler, Thomas P., The Interstate Printers and Publishers, Danville, Illinois, 1962.

B. *Cuts of Meat - How You Can Identify Them*, Swift and Company, Agriculture Research Department, Chicago, Illinois.

C. *Meat Evaluation Handbook*, National Livestock and Meat Board, Chicago, Illinois, 1969.

D. *Procedures To Evaluate Market Hogs*, National Pork Producers Council, 4715 Grand, Des Moines, Iowa 50312

E. *U.S.D.A. Field Grades For Lamb*, U.S.D.A. Marketing Bulletin No. 52, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

F. *U.S.D.A. Grades for Pork Carcasses*, U.S.D.A. Marketing Bulletin No. 49, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

G. *U.S.D.A. Yield Grades For Beef*, U.S.D.A. Marketing Bulletin No. 45, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

H. *U.S.D.A. Grades for Slaughter Swine and Feeder Pigs*, U.S.D.A. Marketing Bulletin No. 51, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB

AP-89-A

UNIT V

INFORMATION SHEET

I. Terms and Definitions:

A. Wholesale cuts - the parts at which the carcass is separated for selling purposes.

B. Retail cuts - those cuts of meat sold directly to the consumer market.

C. Carcass - the dressed, slaughtered animal containing two "sides"--two forequarters and two hindquarters.

D. Bone - item used in determining the age of a beef carcass as evidenced by the youthfulness or maturity as indicated by the chine bones.

E. Chine bones - extensions of the thorasiac vertebrae, with cartilage appendages, which determine the age of the carcass. A is the youngest, E the oldest.
(NOTE: a pearly white cartilage and a white porous chine indicate youthfulness, while a red cartilage and red bone indicate maturity.)

F. Ossification - hardening of the cartilage which indicates maturity.

G. Marbling - flecks or streaks of intramuscular fat throughout the lean which denotes tenderness. It enhances palatability by increasing juiciness and flavor.

H. Dressing percentage - the weight of the hot carcass as compared to the live weight of the animal.

I. Grade - measure of a carcass's degree of excellence based on conformation, finish, quailty.

J. Conformation - refers to the general build, form, shape, contour, or outline of the carcass.

K. Finish - refers to the amount, quality and distribution of fat.

L. Quality - refers to the eating quality of the meat as indicated by characteristics of fat and lean tissue, bone and marbling.

M. Quality Grade - each grade name is associated with a specific degree of quality. This enables consumers to utilize meat most efficiently by preparing it in the manner for which it is best suited.

N. Feathering - the internal fat deposited between the ribs on the internal carcass. An abundance of feathering indicates an abundance of marbling.

O. Cutability - the proportion of the carcass that is salable as trimmed retail cuts

P. Yield Grade - a uniform method of identifying carcasses for differences in cutability or yield of boneless, closely-trimmed retail cuts from the round, loin, rib, and chuck.

INFORMATION SHEET

II. Beef (Bovine)

A. Wholesale Cuts of Beef (Transparency 1)

1. Forequarter:
    a. Chuck - 25% of the carcass
    b. Brisket - 4% of the carcass
    c. Foreshank - 3% of the carcass
    d. Plate - 7% of the carcass
    e. Rib - 9% of the carcass
    (NOTE: Beef have a dressing percentage of 55%)

2. Hindquarter
    a. Loin - 19% of the carcass
    b. Round - 20% of the carcass
    c. Rump - 4% of the carcass
    d. Hind Shank - 2% of the carcass
    e. Flank - 5% of the carcass

3. Variety Cuts:
    a. Kidney
    b. Heart % of the carcass
    c. Tongue
    d. Liver

B. Degrees of Marbling (Transparency 2)

1. Very abundant
2. Abundant
3. Moderately abundant
4. Slightly abundant
5. Moderate
6. Modest
7. Small
8. Slight
9. Traces

C. Quality Grades for Beef:

1. The quality grades for beef are:
    a. Prime
    b. Choice
    c. Good
    d. Standard
    e. Utility
    f. Commercial
    g. Cutter
    h. Canner
    (NOTE: Quality grades are determined by three subjectively scored factors: conformation score, maturity score, and marbling score)

INFORMATION SHEET

2. Grading Chart for Beef

Grade	Maturity	Marbling
Prime	A&B	Very abundant and abundant
Choice	A&B	Abundant, moderate, modest, small
Good	A&B	Small, slight, traces
Standard	A&B	Traces, practically devoid
Commercial	C, D, & E	Abundant, moderate, modest, small
Utility	Young or Mature Carcasses	Small, slight, moderate, modest, traces
Cutter*	C, D, & E	Slight, traces, devoid
Canner*	C, D, & E	Devoid

*Cutter and canner are ordinarily used in processed meat products and are rarely, if ever, sold as retail cuts.

D. Steps for Determining Yield Grades for Beef

U.S.D.A. Beef Cattle Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.13
.10	2.25
.15	2.38
.20	2.50
.25	2.63
.30	2.75
.35	2.88
.40	3.00
.45	3.13
.50	3.25
.55	3.38
.60	3.50
.65	3.63
.70	3.75
.75	3.88
.80	4.00
.85	4.13
.90	4.25
.95	4.38
1.00	4.50
1.05	4.63

INFORMATION SHEET

Step 1 – Continued

Fat Thickness (in.)	Preliminary Y.G.
1.10	4.75
1.15	4.88
1.20	5.00
1.25	5.13
1.30	5.25
1.35	5.38
1.40	5.50
1.45	5.63
1.50	5.75
1.55	5.88

Step 2. Adjustment for Rib-Eye-Area (R.E.A.)

Hot Carcass Wt. (lb.)	R.E.A. (sq. in.)
500	9.8
525	10.1
550	10.4
575	10.7
600	11.0
625	11.3
650	11.6
675	11.9
700	12.2
725	12.5
750	12.8
775	13.1
800	13.4
825	13.7
850	14.0
875	14.3
900	14.6

a. For each sq. in. more R.E.A. than shown in the above table, subtract .3 from the preliminary Y.G.

b. For each sq. in. less R.E.A. than shown in the above table, add .3 to the preliminary Y.G.

Step 3. Adjustment for % Kidney, Pelvic and Heart Fat (% KPH Fat)

a. For each % KPH fat more than 3.5%, add .20 to the adjusted Y.G. found in Step 2.

INFORMATION SHEET

b. For each % KPH fat less than 3.5%, subtract .20 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED.

Step 4. Round the Final Yield Grade down to the nearest .1
Example:
2.73 = 2.7
2.78 = 2.7

This information available along with other yield grade information in pocket card form from: Keith Gilster, Animal Science Department, Marvel Baker Hall, Institute of Agriculture and Natural Resources, University of Nebraska, Lincoln, Nebraska 68583

III. Pork

A. Wholesale cuts of Pork (Transparency 3)

1. Ham - 19% of the carcass
2. Loin - 15% of the carcass
3. Side - 17.5% of the carcass
4. Picnic shoulder - 8.5% of the carcass
5. Boston butt - 6.5% of the carcass
6. Jowl - 3% of the carcass

(NOTE: Swine have a dressing percentage range of 72-75%)

B. Quality Grades for Pork:

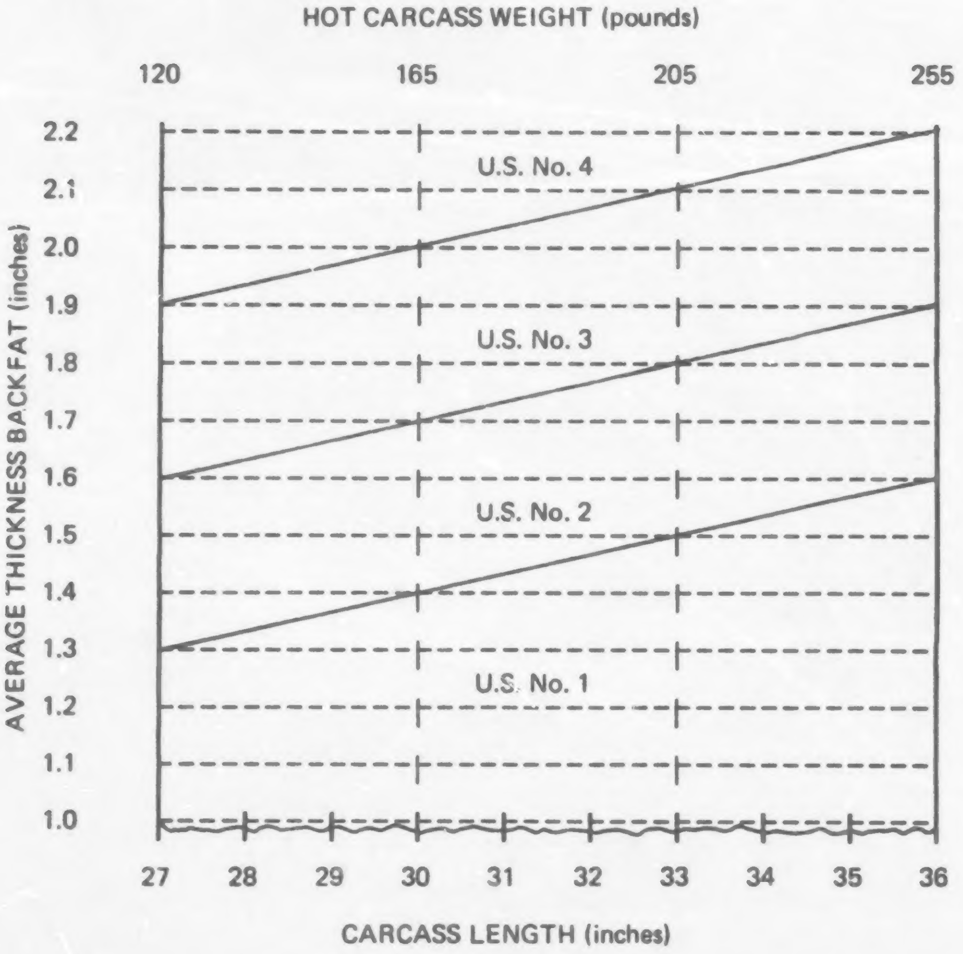
1. Quality grades are based on:
   a. Carcass length
   b. Average backfat thickness
   c. Degree of muscling
      (1) degrees of muscling include:
         (a) very thick
         (b) thick
         (c) moderately thick
         (d) slightly thin
         (e) thin

2. The U.S.D.A. pork grades include:

Grade	Percent of Lean Cuts
a. U.S. No. 1	53% or more
b. U.S. No. 2	50-52.9%
c. U.S. No. 3	47-49.9%
d. U.S. No. 4	Less than 47%
e. Utility (thin bellies, or soft, oily carcasses)	

INFORMATION SHEET

C. Steps for Determining U.S.D.A. Pork Grades



Step 1. Use carcass length and backfat to locate the preliminary grade on the graph. Hot carcass weight can be used instead of carcass length; however, if the grade would differ, the grade found by using carcass length as part of the determination would be the official.

Step 2. Adjustment for Muscling Score. The muscling scores are Very Thick, Thick, Moderately Thick, Slightly Thin, Thin and Very Thin. The typical muscling scores for pork carcasses are: U.S. No. 1 (Thick), U.S. No. 2 (Moderately Thick), U.S. No. 3 (Slightly Thin) and U.S. No. 4 (Thin).

a. For each full muscling score more than that considered as typical for the preliminary grade, adjust favorably the preliminary grade the equivalent of .1 in. average backfat.

INFORMATION SHEET

b. For each full muscling score less than that considered as typical for the preliminary grade, adjust unfavorably the preliminary grade the equivalent of .1 in. average backfat. In only the U.S. No. 1 grade, this type of compensation is limited to one full inferior muscling score. A pig or carcass with less than moderately thick muscling would not be eligible for the U.S. No. 1 grade.

c. A preliminary grade can not be adjusted more than one grade in either direction.

Example Adjustment For Muscling Score

Length (in.)	Backfat (in.)	Muscling Score	U.S.D.A. Grade
30.0	1.35	Very Thick	1o
30.0	1.35	Thick (Typical of U.S. No. 1 Grade)	1–
30.0	1.35	Moderately Thick	2+
30.0	1.35	Slightly Thin	2o

THE FINAL GRADE HAS BEEN DETERMINED

Step 3. Report the final grade to 1/3 of a grade.

Example:
Best U.S. 1 = 1+
Average U.S. 1 = 1o
Lowest U.S. 1 = 1–

IV. Lamb

A. Wholesale Cuts of Lamb (Transparency 4)

1. Hind saddle:
   a. Leg - 33% of the carcass
   b. Loin - 14% of the carcass
   c. Flank - 3% of the carcass

2. Fore saddle
   a. Rack - 11% of the carcass
   b. Square cut shoulder - 25% of the carcass
   c. Breast - 14% of the carcass
   (NOTE: the fore and hind saddle are separated between the 12th and 13th ribs. Lamb has an average dressing percentage of 45-48%.)

B. Quality Grades for Lamb

1. The quality grades for lamb, much like those for beef, are based on:

INFORMATION SHEET

  a. Fat deposition (lean between ribs, firmness of fat to legs).
  b. Conformation (proportion of edible meat to bone and proportion of carcass weight in the demanded cuts)
  c. Maturity (maturity is determined by break-joint)

2. The U.S.D.A. lamb grades include:
  a. Prime
  b. Choice
  c. Good
  d. Utility
  e. Cull

3. Grading Chart for Lamb:

Grade	Maturity	Fat Deposition		Average Weight
		Feathering	Flank	
Prime	A	Modest	Small	48 pounds
Choice	A–	Slight	Traces	45 pounds
Good	B–	Traces	Practically none	41 pounds
Utility	B–	Practically none	None	30 pounds
Cull	—	—	—	—

C. Steps for Determining U.S.D.A. Lamb Yield Grade

U.S.D.A. Lamb Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.33
.10	2.67
.15	3.00
.20	3.33
.25	3.67
.30	4.00
.35	4.33
.40	4.67
.45	5.00
.50	5.33
.55	5.67

INFORMATION SHEET

Step 2. Adjustment For Leg Score

a. For each leg score above 11, subtract .05 from the preliminary Y.G.

b. For each leg score less than 11, add .05 to the preliminary Y.G.

Leg Scores

P+ = 15
Po = 14
P– = 13
C+ = 12
Co = 11
C– = 10
G+ = 9
Go = 8
G– = 7
U+ = 6
Uo = 5
U– = 4
C+ = 3
Co = 2
C– = 1

Step 3. Adjustment for % Kidney and Pelvic Fat (F KP Fat)

a. For each % KP Fat more than 3.5%, add .25 to the adjusted Y.G. found in Step 2.

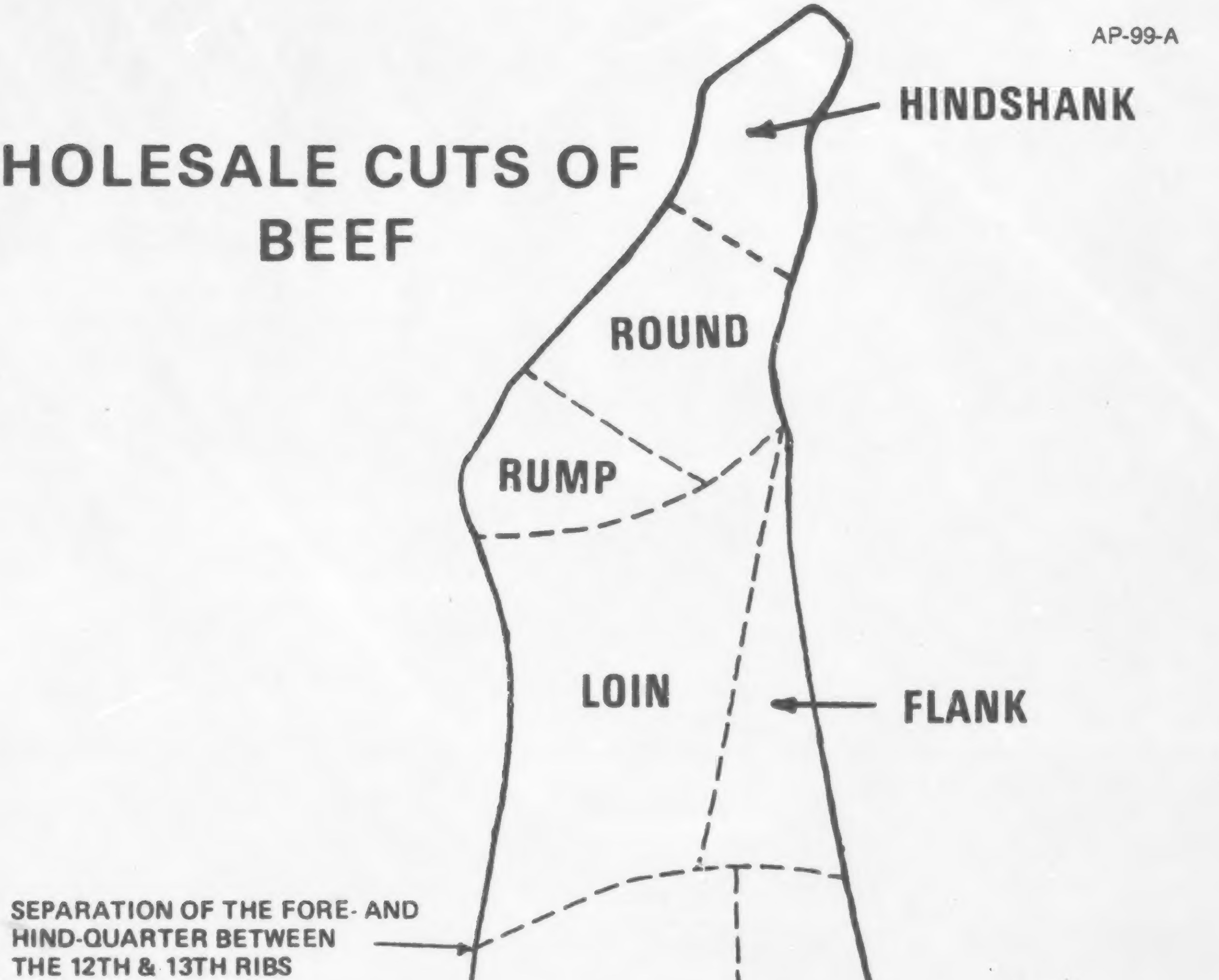
b. For each % KP Fat less than 3.5%, subtract .25 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED

Step 4. Round the Final Yield Grade down to the nearest .1

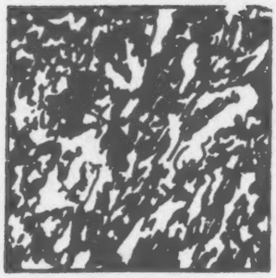
Example:
3.33 = 3.3
3.38 = 3.3

WHOLESALE CUTS OF BEEF

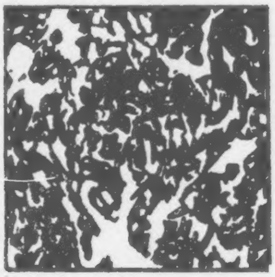

HINDSHANK
ROUND
RUMP
LOIN
FLANK
SEPARATION OF THE FORE- AND HIND-QUARTER BETWEEN THE 12TH & 13TH RIBS
RIB
PLATE
CHUCK
BRISKET
FORESHANK

Illustrations of Marbling

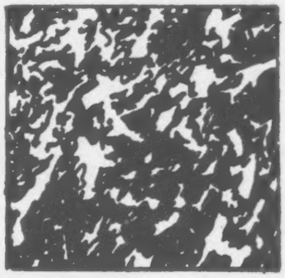
Since marbling is such an important factor in judging and grading beef, the following pictures illustrate the lower limits of eight of the degrees of marbling (abundant through traces) referred to in the official United States Standards for Grades of Carcass Beef. In grading, positive consideration is given to marbling through the upper limit of "abundant." That amount is depicted by the illustration of the lower limit of "very abundant." The lowest degree of marbling, "practically devoid" is not illustrated.



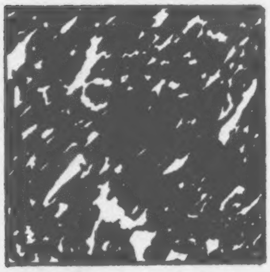
1 - Very Abundant



2 - Abundant



3 - Moderately Abundant



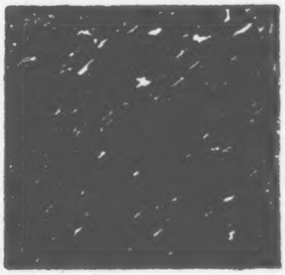
4 - Slightly Abundant

5 - Moderate

6 - Modest

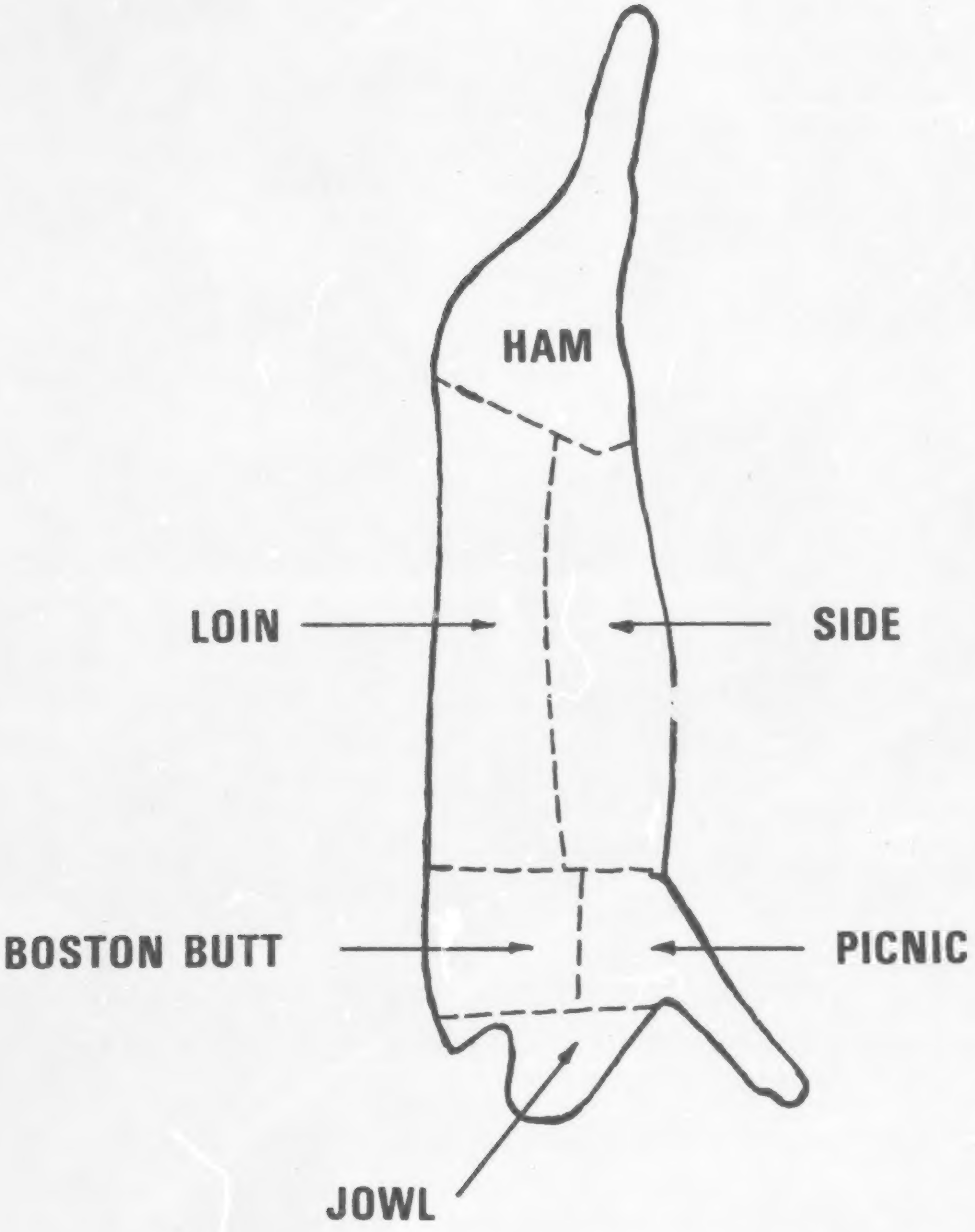
7 - Small

8 - Slight

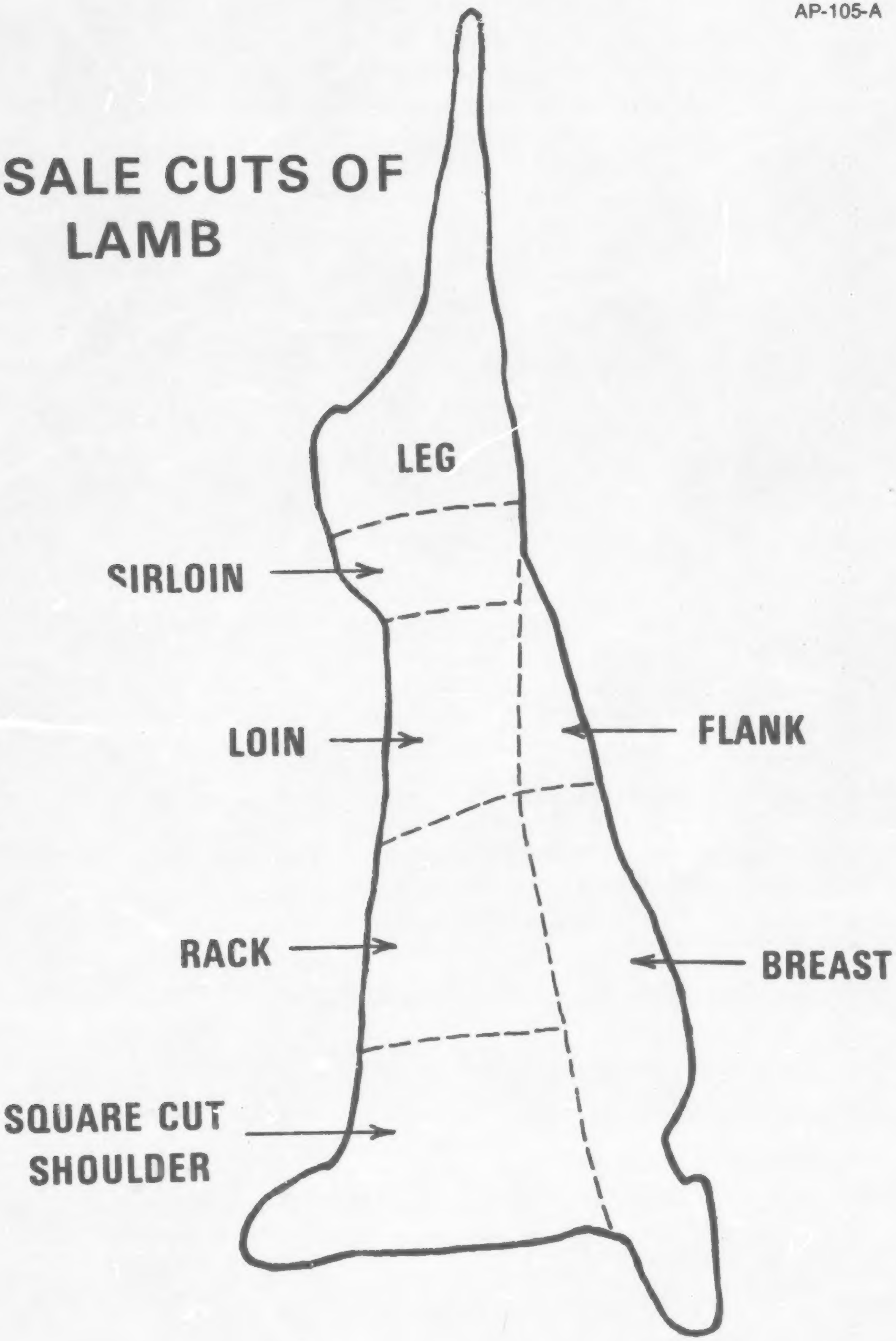


9 - Traces

WHOLESALE CUTS OF PORK


HAM
LOIN
SIDE
BOSTON BUTT
PICNIC
JOWL

WHOLESALE CUTS OF LAMB


LEG
SIRLOIN
LOIN
FLANK
RACK
BREAST
SQUARE CUT SHOULDER

WHOLESALE CUTS AND GRADES OF
BEEF, PORK, AND LAMB
UNIT V

ASSIGNMENT SHEET #1—CALCULATING YIELD GRADE

1. Compute yield grade for the following beef animal using the chart given below:

   Hot carcass weight – 800 lbs.

   Ribeye area (sq. in.) – 14.4 sq. in.

   Kidney, heart, and pelvic fat – 3.0%

   Fat thickness – .4 in.

U.S.D.A. Beef Cattle Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.13
.10	2.25
.15	2.38
.20	2.50
.25	2.63
.30	2.75
.35	2.88
.40	3.00
.45	3.13
.50	3.25
.55	3.38
.60	3.50
.65	3.63
.70	3.75
.75	3.88
.80	4.00
.85	4.13
.90	4.25
.95	4.38
1.00	4.50
1.05	4.63
1.10	4.75
1.15	4.88
1.20	5.00
1.25	5.13
1.30	5.25
1.35	5.38
1.40	5.50
1.45	5.63
1.50	5.75
1.55	5.88

Step 2. Adjustment For Rib-Eye-Area (R.E.A.)

Hot Carcass Wt. (lb.)	R.E.A. (sq. in.)
500	9.8
525	10.1
550	10.4
575	10.7
600	11.0
625	11.3
650	11.6
675	11.9
700	12.2
725	12.5
750	12.8
775	13.1
800	13.4
825	13.7
850	14.0
875	14.3
900	14.6

a. For each sq. in. more R.E.A. than shown in the above table, subtract .3 from the preliminary Y.G.

b. For each sq. in. less R.E.A. than shown in the above table, add .3 to the preliminary Y.G.

Step 3. Adjustment for % Kidney, Pelvic and Heart Fat (% KPH Fat)

a. For each % KPH fat more than 3.5%, add .20 to the adjusted Y.G. found in Step 2.

b. For each % KPH fat less than 3.5%, subtract .20 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED

Step 4. Round the Final Yield Grade down to the nearest .1

Example

2.73 = 2.7

2.78 = 2.7

WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V

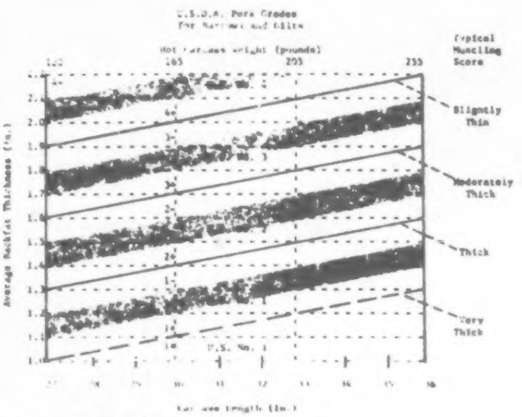
ASSIGNMENT SHEET #2—CALCULATING YIELD GRADE

1. Compute the percent of lean pork for the following pork carcass using the chart given below:

   Carcass length – 32 in.

   Backfat – 1.3 in.

   Muscling score – Thick



Step 1. Use carcass length and backfat to locate the preliminary grade on the graph. Hot carcass weight can be used instead of carcass length, however, if the grade would differ, the grade found by using carcass length as part of the determination would be the official.

Step 2. Adjustment for Muscling Score. The muscling scores are Very Thick, Thick, Moderately Thick, Slightly Thin, Thin and Very Thin. The typical muscling scores for pork carcasses are: U.S. No. 1 (Thick), U.S. No. 2 (Moderately Thick), U.S. No. 3 (Slightly Thin) and U.S. No. 4 (Thin).

a. For each full muscling score more than that considered as typical for the preliminary grade, adjust favorably the preliminary grade the equivalent of .1 in. average backfat.

b. For each full muscling score less than that considered as typical for the preliminary grade, adjust unfavorably the preliminary grade the equivalent of .1 in. average backfat. In only the U.S. No. 1 grade, this type of compensation is limited to one full inferior muscling score. A pig or carcass with less than moderately thick muscling would not be eligible for the U.S. No. 1 grade.

c. A preliminary grade can not be adjusted more than one grade in either direction.

Example Adjustment For Muscling Score

Length (in.)	Backfat (in.)	Muscling Score	USDA Grade
30.0	1.35	Very Thick	1o
30.0	1.35	Thick (Typical of U.S. No. 1 Grade)	1-
30.0	1.45	Moderately Thick	2+
30.0	1.35	Slightly Thin	2o

THE FINAL GRADE HAS BEEN DETERMINED

Step 3. Report the final grade to 1/3 of a grade.

Example

Best U.S. 1 = 1+
Average U.S. 1 = 1o
Lowest U.S. 1 = 1-

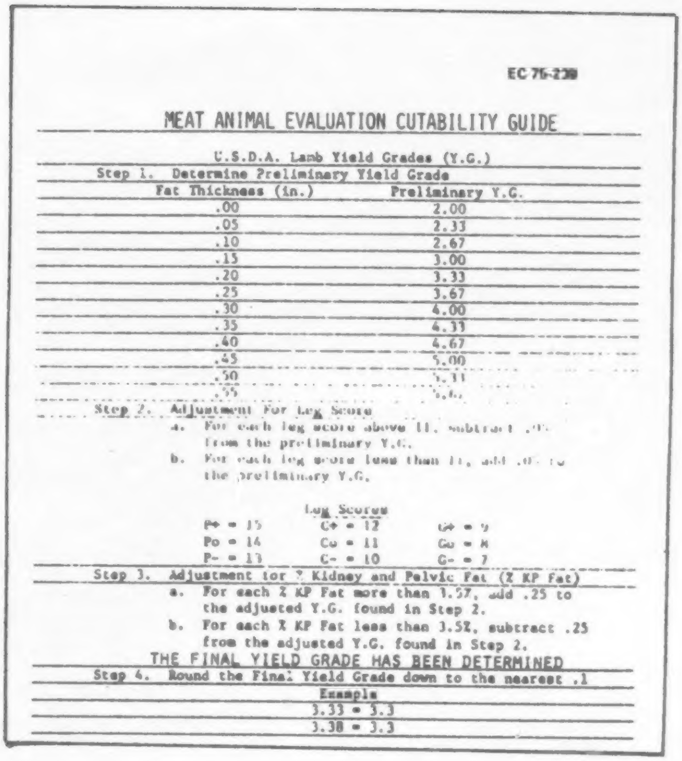
WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V

ASSIGNMENT SHEET #3—CALCULATING YIELD GRADE FOR LAMB CARCASSES USING THE CHART GIVEN BELOW:

Fat Thickness over loin (in.) – .10 in.

Leg Confirmation score – 13

Kidney, heart, and pelvic fat (%) – 2.5%



EC 75-230

MEAT ANIMAL EVALUATION CUTABILITY GUIDE

U.S.D.A. Lamb Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.33
.10	2.67
.15	3.00
.20	3.33
.25	3.67
.30	4.00
.35	4.33
.40	4.67
.45	5.00
.50	5.33
.55	5.67

Step 2. Adjustment For Leg Score

a. For each leg score above 11, subtract .05 from the preliminary Y.G.

b. For each leg score less than 11, add .05 to the preliminary Y.G.

Leg Scores

P+ = 15	C+ = 12	G+ = 9
Po = 14	Co = 11	Go = 8
P- = 13	C- = 10	G- = 7

Step 3. Adjustment for % Kidney and Pelvic Fat (% KP Fat)

a. For each % KP Fat more than 3.5%, add .25 to the adjusted Y.G. found in Step 2.

b. For each % KP Fat less than 3.5%, subtract .25 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED

Step 4. Round the Final Yield Grade down to the nearest .1

Example

3.33 = 3.3

3.38 = 3.3

WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V

ANSWERS TO ASSIGNMENT SHEETS

A. Assignment Sheet No. 1

3.00		3.50
–.3	12.8	–.45
–.10		0
2.60		3.05

B. Assignment Sheet No. 2

U.S. No. 1o

C. Assignment Sheet No. 3

2.67
–.10
–.25
2.32

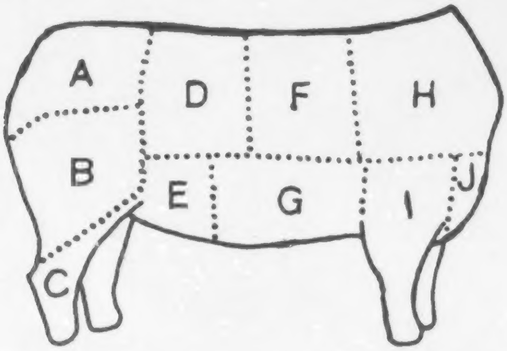
WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V
TEST

1. Match the terms on the right with the correct definitions.

____ A. Wholesale cuts
____ B. Marbling
____ C. Grade
____ D. Finish
____ E. Quality
____ F. Feathering
____ G. Cutability

1. Measure of carcass's degree of excellence based on conformation, finish, quality.
2. Refers to the amount, quality and distribution of fat.
3. The parts at which the carcass is separated for selling purposes.
4. Refers to the eating quality of the meat as indicated by characteristics of the fat and lean tissue, bone and marbling.
5. The portion of the carcass that is salable as trimmed retail cuts.
6. The internal fat deposited between the ribs on the internal carcass. An abundance of feathering indicates an abundance of marbling.
7. Flecks or streaks of intramuscular fat throughout the lean which denotes tenderness.

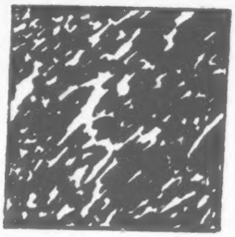
2. Label the drawing below indicating the wholesale cuts of beef:

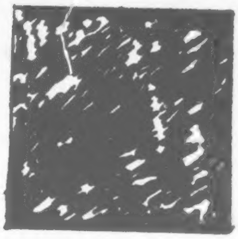


A. ____________________
B. ____________________
C. ____________________
D. ____________________
E. ____________________
F. ____________________
G. ____________________
H. ____________________
I. ____________________
J. ____________________

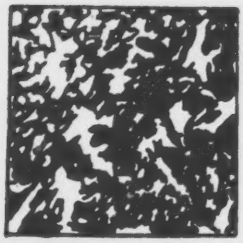
3. Match the degrees of marbling with the examples below:

____ A. Traces
____ B. Slight
____ C. Small
____ D. Modest
____ E. Moderate
____ F. Slightly Abundant
____ G. Moderately Abundant
____ H. Abundant
____ I. Very Abundant

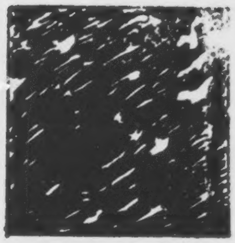

1


2

3

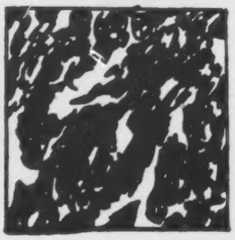

4

5


6

7

8


9

4. List the quality grades for beef:

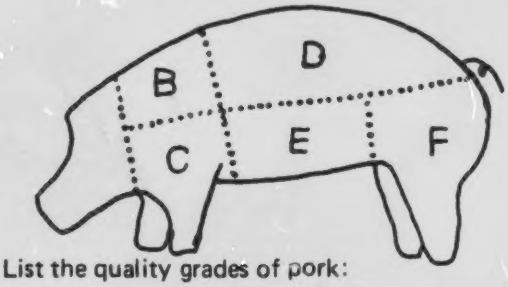
A.
B.
C.
D.
E.
F.
G.
H.

5. What are quality grades of beef based on?

6. Calculate the yield grade for the following beef animal using the meat animal evaluation cutability guide provided.

Hot carcass weight – 600 lbs.
Ribeye area (sq. in.) – 12.2 sq. in.
Kidney, heart, and pelvic fat – 3.0 %
Adjusted fat thickness – .4 in.

7. Identify the wholesale cuts of pork from the drawing below:



A. ____________________
B. ____________________
C. ____________________
D. ____________________
E. ____________________
F. ____________________

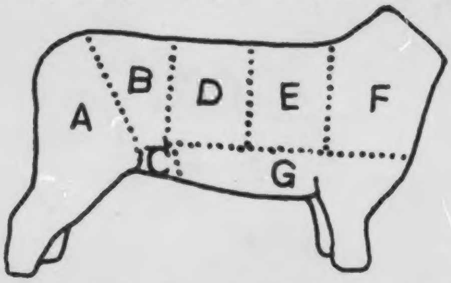
8. List the quality grades of pork:

A.
B.
C.
D.
E.

9. Calculate the percent of lean pork on the following pork carcass using the meat animal evaluation cutability guide provided.

Carcass length – 31 in.
Backfat – 1.5 in.
Muscling score – Moderately Thick

10. Identify the wholesale cuts of lamb from the drawing below:



A. ____________________
B. ____________________
C. ____________________
D. ____________________
E. ____________________
F. ____________________
G. ____________________

11. Place the lamb market grades below in order from best to least best.

A.	Choice	A.
B.	Utility	B.
C.	Prime	C.
D.	Good	D.

12. Calculate the yield grade on the following lamb carcass using the meat animal evaluation cutability guide provided.
    Fat thickness over loin (in.) – .05 in.
    Leg conformation score – 12
    Kidney, heart, and pelvic fat (%) – 1.5%

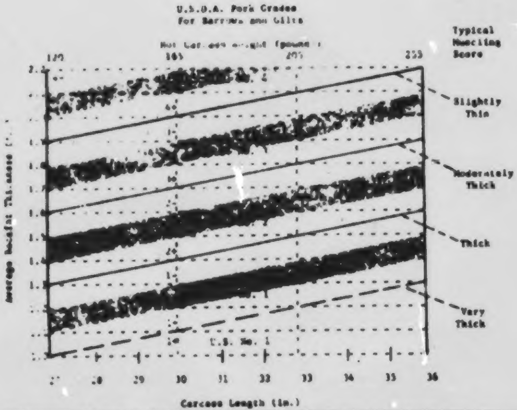
13. Give the average dressing percentages for the animals listed below:

    A. Beef ________ %
    B. Pork ________ %
    C. Lamb ________ %

U.S.D.A. Beef Cattle Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.13
.10	2.25
.15	2.38
.20	2.50
.25	2.63
.30	2.75
.35	2.88
.40	3.00
.45	3.13
.50	3.25
.55	3.38
.60	3.50
.65	3.63
.70	3.75
.75	3.88
.80	4.00
.85	4.13
.90	4.25
.95	4.38
1.00	4.50
1.05	4.63
1.10	4.75
1.15	4.88
1.20	5.00
1.25	5.13
1.30	5.25
1.35	5.38
1.40	5.50
1.45	5.63
1.50	5.75
1.55	5.88



Step 1. Use carcass length and backfat to locate the preliminary grade on the graph. Hot carcass weight can be used instead of carcass length; however, if the grade would differ, the grade found by using carcass length as part of the determination would be the official.

Step 2. Adjustment for Muscling Score. The muscling scores are Very Thick, Thick, Moderately Thick, Slightly Thin, Thin and Very Thin. The typical muscling scores for pork carcasses are: U.S. No. 1 (Thick), U.S. No. 2 (Moderately Thick), U.S. No. 3 (Slightly Thin) and U.S. No. 4 (Thin).

a. For each full muscling score more than that considered as typical for the preliminary grade, adjust favorably the preliminary grade the equivalent of .1 in. average backfat.

b. For each full muscling score less than that considered as typical for the preliminary grade, adjust unfavorably the preliminary grade the equivalent of .1 in. average backfat. In only the U.S. No. 1 grade, this type of compensation is limited to one full inferior muscling score. A pig or carcass with less than moderately thick muscling would not be eligible for the U.S. No. 1 grade.

c. A preliminary grade can not be adjusted more than one grade in either direction.

Example Adjustment for Muscling Score

Length (in.)	Backfat (in.)	Muscling Score	USDA Grade
30.0	1.35	Very Thick	1o
30.0	1.35	Thick (Typical of U.S. No. 1 Grade)	1-
30.0	1.35	Moderately Thick	2+
30.0	1.35	Slightly Thin	2o

THE FINAL GRADE HAS BEEN DETERMINED

Step 3. Report the final grade to 1/3 of a grade.

Example

Best U.S. 1 = 1+
Average U.S. 1 = 1o
Lowest U.S. 1 = 1-

Step 2. Adjustment For Rib-Eye-Area (R.E.A.)

Hot Carcass Wt. (lb.)	R.E.A. (sq. in.)
900	9.8
525	10.1
550	10.4
575	10.7
600	11.0
625	11.3
650	11.6
675	11.9
700	12.2
725	12.5
750	12.8
775	13.1
800	13.4
825	13.7
850	14.0
875	14.3
900	14.6

a. For each sq. in. more R.E.A. than shown in the above table, subtract .3 from the preliminary Y.G.

b. For each sq. in. less R.E.A. than shown in the above table, add .3 to the preliminary Y.G.

Step 3. Adjustment for % Kidney, Pelvic and Heart Fat (% KPH Fat)

a. For each % KPH fat more than 3.5%, add .20 to the adjusted Y.G. found in Step 2.

b. For each % KPH fat less than 3.5%, subtract .20 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED

Step 4. Round the Final Yield Grade down to the nearest .1

Example

2.73 = 2.7
2.78 = 2.7

EC 75-239

MEAT ANIMAL EVALUATION CUTABILITY GUIDE

U.S.D.A. Lamb Yield Grades (Y.G.)

Step 1. Determine Preliminary Yield Grade

Fat Thickness (in.)	Preliminary Y.G.
.00	2.00
.05	2.33
.10	2.67
.15	3.00
.20	3.33
.25	3.67
.30	4.00
.35	4.33
.40	4.67
.45	5.00
.50	5.33
.55	5.67

Step 2. Adjustment For Leg Score

a. For each leg score above 11, subtract .05 from the preliminary Y.G.

b. For each leg score less than 11, add .05 to the preliminary Y.G.

Leg Scores

P+ = 15	C+ = 12	G+ = 9
Po = 14	Co = 11	Go = 8
P- = 13	C- = 10	G- = 7

Step 3. Adjustment for % Kidney and Pelvic Fat (% KP Fat)

a. For each % KP Fat more than 3.5%, add .25 to the adjusted Y.G. found in Step 2.

b. For each % KP Fat less than 3.5%, subtract .25 from the adjusted Y.G. found in Step 2.

THE FINAL YIELD GRADE HAS BEEN DETERMINED

Step 4. Round the Final Yield Grade down to the nearest .1

Example

3.33 = 3.3
3.38 = 3.3

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Leo E. Lucas, Director

WHOLESALE CUTS AND GRADES OF BEEF, PORK, AND LAMB
UNIT V

ANSWERS TO TEST

1.
   - A. 3
   - B. 7
   - C. 1
   - D. 2
   - E. 4
   - F. 6
   - G. 5
2.
   - a. rump
   - b. round
   - c. hind shank
   - d. loin
   - e. flank
   - f. ribs
   - g. plate
   - h. chuck
   - i. foreshank
   - j. brisket
3.
   - a. 3 Traces
   - b. 6 Slight
   - c. 2 Small
   - d. 5 Modest
   - e. 7 Moderate
   - f. 1 Slightly abundant
   - g. 4 Moderately abundant
   - h. 8 Abundant
   - i. 9 Very abundant
4.
   - a. Prime
   - b. Choice
   - c. Good
   - d. Standard
   - e. Utility
   - f. Commercial
   - g. Cutter
   - h. Canner
5. Quality grades are determined by three subjectively scored factors: conformation score, maturity score, and marbling score.
6.
   - 3.00
   - −.36
   - −.10
   - 2.54
   - Rounded Answer 2.5
7.
   - a. Jowl
   - b. Boston butt
   - c. Picnic
   - d. Loin
   - e. Side
   - f. Ham
8.
   - a. U.S. No. 1
   - b. U.S. No. 2
   - c. U.S. No. 3
   - d. U.S. No. 4
   - e. Utility
9. U.S.D.A. Pork Grade 2+
10.
    - a. Leg
    - b. Sirloin
    - c. Flank
    - d. Loin
    - e. Rack
    - f. Square cut
    - g. Breast
11.
    - a. Prime
    - b. Choice
    - c. Good
    - d. Utility
12.
    - 2.33
    - −.05
    - −.50
    - 1.78
    - Rounded Answer 1.7
13.
    - a. Beef 55%
    - b. Pork 72-75%
    - c. Lamb 45-48%

RETAIL CUTS OF MEAT
UNIT VI

UNIT OBJECTIVE

After completion of this unit, the student should be able to match wholesale cuts to basic retail cuts of beef, pork, and lamb. The student should be able to show the differences between the species of meat, extend a porterhouse cut, and bone out a three rib roast. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with retail cuts of meat to the correct definitions.
2. Match wholesale cuts to the basic retail cuts of beef.
3. Match the wholesale cuts to the basic retail cuts of pork.
4. Match the wholesale cuts to the basic retail cuts of lamb.
5. List the seven basic retail cuts of meat.
6. List the bones found in four of the seven retail cuts.
7. Complete a chart showing the differences between the three species of meat.
8. Demonstrate the ability to:
    a. Extend porterhouse cut.
    b. Bone out a three-rib roast.

RETAIL CUTS OF MEAT
UNIT VI

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information and job sheets.

  C. Discuss unit and specific objectives.

  D. Demonstrate and discuss procedures outlined in the job sheets.

  E. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheets and take notes.

  C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Job sheets

    1. Job Sheet #1—Extend Porterhouse Cut

    2. Job Sheet #2 Bone Out a Three Rib Roast

  D. Test

  E. Answers to test

II. References:

A. Ziegler, Thomas D. *The Meat We Eat.* Danville, Illinois: The Interstate Printers and Publishers, 1962.

B. *How to Buy Meat for Your Freezer.* Washington, D.C.: U.S. Department of Agriculture, Consumer and Marketing Service, Garden Bulletin No. 166, 1969.

C. *Meat Buyer's Guide:* Tucson, Arizona: National Association of Meat Purveyors, 1976.

RETAIL CUTS OF MEAT
UNIT VI
INFORMATION SHEET

I. Terms and definitions

- A. Hotel rack—Another name for lamb wholesale ribs
- B. Butterfly chop—Pork chop boned and split but hinged together
- C. Roast—Meat cut at 1½" or thicker
- D. Steak—Meat cut less than 1-1½" thick
- E. Lard—Fat of pork
- F. Tallow—Fat of a beef animal
- G. Canadian bacon—Cured longdisimus dorsi muscle of pork
- H. Shipper style—Unsplit carcass with head on
- I. Packer style—Pork carcass; two sides with jowl attached but head removed
- J. Farmer style—Pork carcass split on either side of backbone

II. Wholesale and basic retail cuts of beef

- A. Chuck—Chuck roast
- B. Rib
    - 1. Club steak
    - 2. T-bone steak
    - 3. Porterhouse steak
- C. Loin—Sirloin steak
- D. Rump—Rump roast
- E. Round—Round steak
- F. Shank
    - 1. Stew meat
    - 2. Ground beef
- G. Flank—Flank steak

INFORMATION SHEET

H. Plate
   1. Short ribs
   2. Plate

I. Foreshank and brisket
   1. Brisket
   2. Arm roast

III. Wholesale and basic retail cuts of pork

   A. Boston butt
      1. Boston butt ham
      2. Blade steak
      3. Sausage

   B. Back
      1. Blade loin roast
      2. Tenderloin

   C. Loin and rump
      1. Blade chop
      2. Loin chop
      3. Canadian bacon

   D. Leg
      1. Ham (butt half)
      2. Ham (shank half)
      3. Ham roast

   E. Side
      1. Salt pork
      2. spareribs
      3. Bacon

   F. Picnic
      1. Arm roast
      2. Picnic ham
      3. Arm steak

   G. Jowl
      1. Bacon
      2. Sausage

IV. Wholesale and basic retail cuts of lamb

   A. Shoulder
      1. Square shoulder
      2. Arm chop

   B. Back
      1. Rib roast
      2. Rib chop

   C. Loin
      1. Loin roast
      2. Loin chop

INFORMATION SHEET

- D. Sirloin
    - 1. Sirloin roast
    - 2. Sirloin chop
- E. Leg
    - 1. Shank (leg of lamb)
    - 2. Leg steak
    - 3. Ground lamb
- F. Breast
    - 1. Breast
    - 2. Stuffed breast
- G. Foreshank—Foreshank roast

V. Basic retail cuts of meat

(NOTE: These basic cuts are common to all three species of livestock.)

- A. Chuck
- B. Rib cuts
- C. Loin cuts
- D. Sirloin cuts
- E. Arm cuts
- F. Breast
- G. Leg, round, or ham

VI Bones of seven retail cuts

- A. Shoulder cuts—Arm bone
- B. Shoulder blade cuts
    - 1. Blade bone (near neck)
    - 2. Blade bone (center cuts)
    - 3. Blade bone (near rib)
- C. Rib cuts
    - 1. Back bone
    - 2. Rib bone

INFORMATION SHEET

D. Short loin cuts—Back bone

(NOTE: T-shape=T-bone.)

E. Hip cuts

1. Pin bone
2. Flat bone
3. Wedge bone

F. Leg—Round or leg bone

G. Breast or brisket cuts

1. Breast bone
2. Rib bone

VII. Difference between species of meat

Species	*Meat Color*	*Size of Bone*	*Type of Fat*
Beef	Bright cherry red	Large	Medium hard
Veal	Light pink	Medium	Little on carcass
Pork	Grayish pink	Medium	Soft, greasy
Lamb	Pinkish red	Small	Hard

RETAIL CUTS OF MEAT
UNIT VI

JOB SHEET #1—EXTEND PORTERHOUSE CUT

I. Equipment

  A. Knife

  B. Porterhouse steak

II. Procedure

  A. Place steak flat on cutting surface

  B. Insert knife in the narrowest part of steak

  C. Slice straight across, cutting off tail

  D. Remove filet mignon

  E. Trim away excessive fat

  F. Cut out the bone

  G. Trim excessive fat

  H. Slice strip steak vertically

  I. Cube trimmed tails

RETAIL CUTS OF MEAT
UNIT VI

JOB SHEET #2—BONE OUT A THREE RIB ROAST

I. Equipment

   A. Three rib roast

   B. Knife

II. Procedure

   A. Cut across exposed ribs to thick end with tip of knife

   B. Remove all three bones

   C. Place boneless roast flat side up

   D. Trim away excessive fat

   E. Divide into eight steaks

RETAIL CUTS OF MEAT
UNIT VI
TEST

1. Match the terms on the right with the correct definitions.

____ a. Pork carcass split on either side of backbone
____ b. Meat cut at 1½" or thicker
____ c. Unsplit carcass with head on
____ d. Fat of pork
____ e. Pork chop boned and split but hinged together
____ f. Fat of a beef animal
____ g. Meat cut less than 1-1½" thick
____ h. Pork carcass; two sides with jowl attached but head removed
____ i. Another name for lamb wholesale ribs
____ j. Cured longdisimus dorsi muscle of pork

1. Hotel rack
2. Butterfly chop
3. Roast
4. Steak
5. Lard
6. Tallow
7. Canadian bacon
8. Shipper style
9. Packer style
10. Farmer style

2. Match the wholesale cuts on the right to the basic retail cuts.

____ a. Stew meat
____ b. Short ribs
____ c. Sirloin steak
____ d. Chuck roast
____ e. T-bone steak
____ f. Arm roast
____ g. Plate
____ h. Round steak
____ i. Rump roast
____ j. Brisket
____ k. Flank steak
____ l. Porterhouse steak
____ m. Club steak
____ n. Ground beef

1. Chuck
2. Rib
3. Loin
4. Rump
5. Round
6. Shank
7. Flank
8. Plate
9. Foreshank and brisket

3. Match the wholesale cuts on the right to the basic retail cuts of pork. A blank may have more than one correct answer.

____ a. Boston butt ham
____ b. Tenderloin
____ c. Bacon
____ d. Loin chop
____ e. Ham roast
____ f. Salt pork
____ g. Arm roast
____ h. Sausage
____ i. Picnic ham
____ j. Arm steak
____ k. Blade steak
____ l. Blade chop
____ m. Canadian bacon
____ n. Blade loin roast
____ o. Ham (butt half)
____ p. Ham (shank half)
____ q. Spareribs

1. Boston butt
2. Back
3. Loin and rump
4. Leg
5. Side
6. Picnic
7. Jowl

4. Match the wholesale cuts on the right to the basic retail cuts of lamb.

____ a. Square shoulder
____ b. Loin roast
____ c. Arm chop
____ d. Foreshank roast
____ e. Leg steak
____ f. Breast
____ g. Rib chop
____ h. Sirloin roast
____ i. Rib roast

1. Shoulder
2. Back
3. Loin
4. Sirloin
5. Leg
6. Breast
7. Foreshank

j. Ground lamb

___ k. Stuffed breast

___ l. Shank (leg of lamb)

___ m. Loin chop

___ n. Sirloin chop

5. List the seven basic retail cuts of meat.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

6. List the bones found in the retail cuts below.
   a. Shoulder cuts—

   b. Rib cuts

      1)

      2)

   c. Hip cuts

      1)

      2)

      3)

   d. Leg—

7. Complete the chart below showing the differences between the species of meat.

Species	*Meat Color*	*Size of Bone*	*Type of fat*
Beef			
	Light pink	Medium	
Pork		Medium	
	Pinkish red		Hard

8. Demonstrate the ability to:
   a. Extend porterhouse cut.
   b. Bone out a three rib roast.

RETAIL CUTS OF MEAT
UNIT VI
ANSWERS TO TEST

1. a. 10
b. 3
c. 8
d. 5
e. 2
f. 6
g. 4
h. 9
i. 1
j. 7

2. a. 6
b. 8
c. 3
d. 1
e. 2
f. 9
g. 8
h. 5
i. 4
j. 9
k. 7
l. 2
m. 2
n. 6

3. a. 1
b. 2
c. 7 or 5
d. 3
e. 4
f. 5
g. 6
h. 1 or 7
i. 6
j. 6
k. 1
l. 3
m. 3
n. 2
o. 4
p. 4
q. 5

4. a. 1
b. 3
c. 1
d. 7
e. 5
f. 6
g. 2
h. 4
i. 2
j. 5
k. 6
l. 5
m. 3
n. 4

5. a. Chuck

b. Rib cuts

c. Loin cuts

d. Sirloin cuts

e. Arm cuts

f. Breast

g. Leg, round, or ham

6. a. Shoulder cuts—

1) Arm bone

b. Rib cuts

1) Back bone

2) Rib bone

c. Hip cuts

1) Pin bone

2) Flat bone

3) Wedge bone

d. Leg—Round or leg bone

7.

Species	*Meat Color*	*Size of Bone*	*Type of Fat*
Beef	Bright cherry red	Large	Medium hard
Veal	Light pink	Medium	Little on carcass
Pork	Grayish pink	Medium	Soft, greasy
Lamb	Pinkish red	Small	Hard

8. Performance skills evaluated to the satisfaction of the instructor.

MEAT INSPECTION AND SANITATION
UNIT VII

UNIT OBJECTIVE

After completion of this unit, the student should be able to list federal inspection organizations, identify federal meat inspection stamps, and list rules to follow to provide clean, wholesome food. The student should also be able to take a swab contact test and a bacterial count. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with meat inspection and sanitation with the correct definitions.
2. Identify the four federal meat inspection stamps.
3. List five rules to follow to provide clean, wholesome food.
4. Match the five federal inspection organizations with the correct functions.
5. List six factors which label animals suspect during ante-mortem.
6. Complete a chart on characteristics of molds, yeasts and bacteria.
7. Demonstrate the ability to:
    a. Take a bacterial count.
    b. Take a swab contact test.

MEAT INSPECTION AND SANITATION
UNIT VII

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information and job sheets.

  C. Make transparency.

  D. Discuss unit and specific objectives.

  E. Discuss information sheets.

  F. Demonstrate and discuss procedures outlined in the job sheet.

  G. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheets.

  C. Demonstrate the ability to accomplish the procedures outlined in the job sheet.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Transparency master: TM1—Federal Meat Inspection Stamps

  D. Job sheets

    1. Job Sheet #1—Take a Bacterial Count

    2. Job Sheet #2—Take a Swab Contact Test

  E. Test

  F. Answers to test

II. References:

A. Bailey, J. W. *Encyclopedia of Labeling Meat and Poultry Products.* St. Louis, Missouri: Meat Plants Magazine, 1976.

B. Brandy, P. J.; Migahi, George; and Taylor, K. E. *Meat We Eat.* Philadelphia, Pennsylvania: Lea & Febiger, 1968.

C. Breidenstein, B. C. *Beef Operations in the Meat Industry.* American Meat Institute, 1966.

D. Edelmann, Richard *Textbook of Meat Hygiene.* Philadelphia, Pennsylvania: Lea & Febiger, 1943.

E. *Manual of Meat Inspection Procedures.* Washington, D. C.: USDA, Consumer and Marketing Service, Meat Inspection Division, 1975.

MEAT INSPECTION AND SANITATION
UNIT VII
INFORMATION SHEETS

I. Terms and definitions

A. Alkali—Any one of a class of compounds that form soluble soaps with fatty acids; turns red litmus blue

B. Antibiotic—Chemical produced by microogranisms that have the capacity to inhibit growth or destroy bacteria

C. Antiseptic—Stops growth and development of microorganisms without destroying microorganisms

D. Bactericide—Compound that will destroy bacteria

E. Germicidal—Adjective meaning destructive to pathogenic microorganisms

F. Mold—Large group of minute parasites or saprophytic fungi that cause wooly deposits

G. Non-pathogenic organism—Organism that does not cause disease in other forms of life

H. Pathogenic organism—Organism capable of causing disease in other forms of life

I. Soap—Any compound of one or more fatty acids with an alkali

J. Sterilization—Process of destroying all microorganisms in or on a substance

K. Yeast—One cell fungi that reproduce mainly by means of asexual spores

II. Federal Meat Inspection Stamps (Transparency 1)

A. Canned

B. Poultry

C. Fresh (purple ink)

D. Processed (Green ink)

III. Rules to follow to provide clean wholesome food

A. Keep food handling area free of microbes

B. Wash hands thoroughly

C. Sanitize hands after every absence from work station

D. Avoid handling food with bare hands

E. Do not squeeze or cough on food

INFORMATION SHEET

F. Keep clothes clean

G. Wear hair net or hat

H. Keep mice, flies, roaches, and other insects from the work area

I. Use an approved cutting surface

J. Do not smoke or chew in the areas where food is processed

IV. Federal inspection organizations

A. Process Meat Inspection Division—Provides continuous inspection of meat processing and preparation of meat products for export

B. Livestock Slaughter Inspection Division—Supervises all operations on procedures dealing with ante-mortem and post-mortem inspections

C. Technical Services Division—Provides technical service to the meat and poultry inspectors; responsible for labeling, standard packaging, laboratories, plant facilities and equipment, and federal/state relations and review

D. Compliance and Evaluation Staff—Located in the office of the Deputy Administrator to review and analyze regulatory and operational procedures affecting both meat and poultry inspections

E. Field District—Supervises day to day activities of inspectors located in the meat plants

V. Factors which label animals suspect during ante-mortem

A. Apparent immaturity

B. Suspected presence of a disease

C. Serious crippling

D. Reaction to a tuberculin test

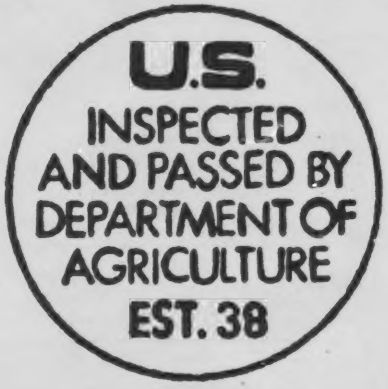
E. Advanced stage of pregnancy

F. High fever of undetermined causes

V. Characteristics of molds, yeasts, and bacteria

CHARACTERISTICS	BACTERIA	YEASTS	MOLDS
Prevalence	Most	Commonly	Readily
Host environment	Ideal	Ideal	Ideal
pH	4.8 to 8.0 (wide range)	Acid	Acid
Temperature	15°C to 60°C	Below 0°C	Below 0°C
Growth location	Surface or interior	Surface or interior	Surface growth
Oxygen requirement	Aerobic and anerobic	Aerobic and anerobic	Aerobic
Vacuum package	Retards growth	Retards growth	Prevents growth
Harmful to health	Both useful and harmful	Not harmful	Not harmful
Presence of salt	Will grow	Will grow	Will grow
Thrive on protein	Yes	Yes	Yes
Easily seen	No	Yes	Yes
Cause odor	Yes	Yes	No
Moisture requirement	High	Low	Low

FEDERAL MEAT INSPECTION STAMPS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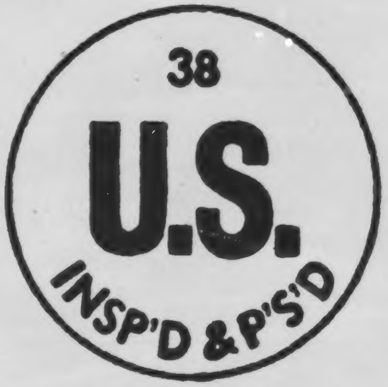
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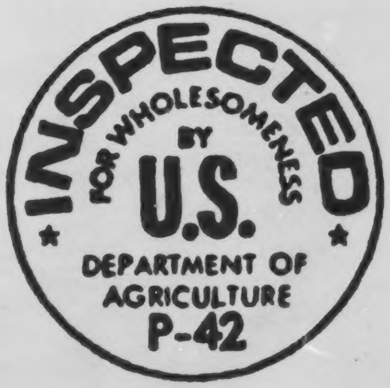
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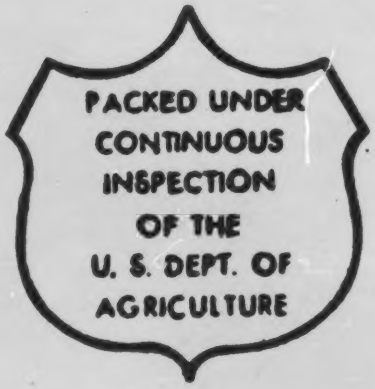
Poultry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Canned

MEAT INSPECTION AND SANITATION
UNIT VII

JOB SHEET #1— TAKE A BACTERIAL COUNT

I. Equipment

- A. Six petri dishes
- B. Wax pencil
- C. Scale
- D. Ground meat
- E. Sterile diluent, 90 ml
- F. Sterile pipette
- G. Sterile spatula
- H. Sterile blender jar
- I. Sterile dilution blank, 99 ml
- J. Standard plate count agar

II. Procedure

- A. Label petri dishes
    1. Group number or initials
    2. Sample number
    3. Number 1-6
    4. Dilution of sample
        - a. Dish 1—10^4
        - b. Dish 2—10^4
        - c. Dish 3—10^5
        - d. Dish 4—10^5
        - e. Dish 5—10^6
        - f. Dish 6—10^6

B. Weigh 10 g of ground meat

C. Place meat in sterile blender jar

D. Add 90 ml sterile diluent

E. Blend less than 3 minutes

F. Transfer 1 ml of ground meat to sterile 99 ml dilution blank

G. Transfer 1 ml of ground meat to another sterile 99 ml dilution blank

H. Shake 25 times through an arc of 12 inches in 7 seconds

I. Transfer 0.1 ml to dishes 1 and 2

J. Transfer 1 ml to a 99 ml dilution blank

K. Shake the dilution blank 25 times through an arc of 12 inches in 7 seconds

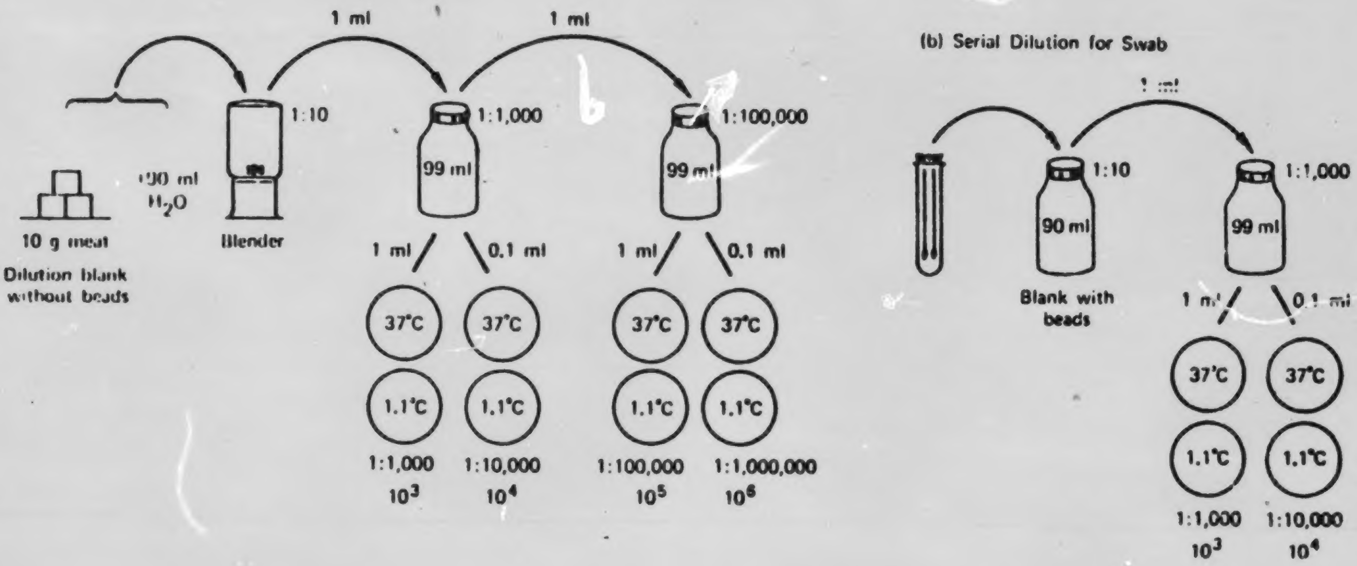
L. Transfer 0.1 ml to dishes 5 and 6 1.0 ml to dishes 3 and 4

M. To each dish add 15 ml of standard plate count again and mix

N. Allow medium to solidify

O. Invert dishes 1, 3, and 5 in refrigerator

P. Leave dishes 2, 4, and 6 in room temperature


1 ml
1 ml
1:10
1:1,000
1:100,000
99 ml
99 ml
10 g meat
90 ml H2O
Blender
Dilution blank without beads
1 ml
0.1 ml
1 ml
0.1 ml
37°C
1.1°C
1:1,000
10³
1:10,000
10⁴
1:100,000
10⁵
1:1,000,000
10⁶
(b) Serial Dilution for Swab
1 ml
1:10
1:1,000
90 ml
99 ml
Blank with beads
1 ml
0.1 ml
37°C
1.1°C
1:1,000
10³
1:10,000
10⁴

MEAT INSPECTION AND SANITATION
UNIT VII

JOB SHEET #2—TAKE A SWAB CONTACT TEST

I. Equipment

- A. Cotton swab
- B. Test tube
- C. Sterile pipette
- D. Standard plate count agar
- E. Petri dishes
- F. Refrigerator
- G. Sterile water

II. Procedure

- A. Fill test tube with water
- B. Dip swab in sterile water
- C. Press out liquid on side of tube
- D. Roll swab over a 5" area
- E. Break off swab below area touched and allow swab to fall into tube
- F. Repeat with a second swab in same tube
- G. Shake well
- H. Label four petri dishes
    1. Your initials
    2. Location of swab
    3. Plate numbers 1-4
    4. Dilution of dish
        - a. 1:1 on dishes 1 and 2
        - b. 1:10 on dishes 3 and 4

JOB SHEET #2

I. Transfer 0.1 ml to dishes 3 and 4

J. Transfer 1.0 ml to dishes 1 and 2

K. Add 15 ml of standard plate count again and mix

L. Allow agar to solidify

M. Invert petri dishes

N. Place dish 1 and 2 in refrigerator

O. Leave dishes 2 and 4 at room temperature

P. Count colonies on the plate at room temperature after 48 hours

Q. Count those held in the refrigerator after 5 days

R. Multiply the number of colonies times the dilution

MEAT INSPECTION AND SANITATION
UNIT VII
TEST

1. Match the terms on the right to the correct definitions.

____ a. Chemical produced by microorganisms that have the capacity to inhibit growth or destroy bacteria

____ b. Any compound of one or more fatty acids with an alkali

____ c. Compound that will destroy bacteria

____ d. Adjective meaning destructive to pathogenic microorganisms

____ e. One cell fungi that reproduce mainly by means of asexual spores

____ f. Organism capable of causing disease in other forms of life

____ g. Any one of a class of compounds that form soluble soaps with fatty acids; turns red litmus blue

____ h. Large group of minute parasites of saprophytic fungi that cause wooly deposits

____ i. Process of destroying all microorganisms in or on a substance

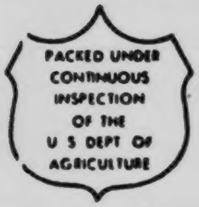
____ j. Stops growth and development of microorganisms without destroying microorganisms

____ k. Organism that does not cause disease in other forms of life

1. Alkali
2. Antibiotic
3. Antiseptic
4. Bactericide
5. Germicidal
6. Mold
7. Non-Pathogenic organism
8. Pathogenic organism
9. Soap
10. Sterilization
11. Yeast

2. Identify the following federal meat inspection stamps.

a. ____________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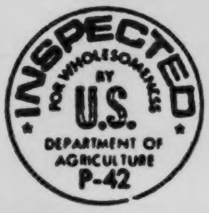
b. ____________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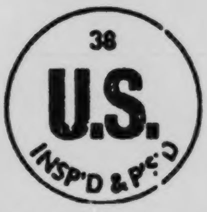
c. ____________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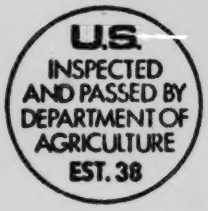
d. ____________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3. List five rules to follow to provide clean, wholesome food.

   a.

   b.

   c.

   d.

   e.

4. Match the five federal inspection organizations on the right to the correct function.

   ____ a. Supervises day to day activities of inspectors located in the meat plants

   ____ b. Supervises all operational procedures dealing with ante-mortem and post-mortem inspections

   ____ c. Provides continuous inspection of meat processing and preparation of meat products for export

   ____ d. Provides technical service to the meat and poultry inspectors; responsible for labeling, standard packaging, laboratories, plant facilities and equipment, and federal/state relations and review

   ____ e. Located in the office of the Deputy Administrator to review and analyze regulatory and operational procedures affecting both meat and poultry inspections

   1. Livestock Slaughter Inspection Division
   2. Processed Meat Inspection
   3. Technical Service Division
   4. Compliance and Evaluation Staff
   5. Field district

5. List six factors which label animals suspect during ante-mortem.

   a.

   b.

   c.

   d.

   e.

   f.

6. Complete the following on characteristics of molds, yeasts, and bacteria.

Characteristics	*Bacteria*	*Molds*	*Yeast*
Prevalence	______	Readily	Commonly
Host environment	Ideal	______	Ideal
pH	4.8 to 8.0	Acid	Acid
Temperature	15° C to 60° C	Below 0° C	______
Growth location	______	Surface growth	Surface or interior
Oxygen requirement	______	Aerobic	______
Vacuum package	Retards growth	______	Retards growth
Harmful to health	______	Not harmful	Not harmful
Presence of salt	______	______	______
Thrive on protein	Yes	Yes	Yes
Easily seen		Yes	Yes
Cause odor	Yes	No	______
Moisture requirement	______	Low	Low

7. Demonstrate the ability to:

   a. Take a bacterial count.

   b. Take a swab contact test.

MEAT INSPECTION AND SANITATION
UNIT VII

ANSWERS TO TEST

1. a. 2
   b. 9
   c. 4
   d. 5
   e. 11
   f. 8
   g. 1
   h. 6
   i. 10
   j. 3
   k. 7

2. a. Canned
   b. Poultry
   c. Fresh (purple ink)
   d. Processed (green ink)

3. Any five of the following:
   a. Keep food handling area free of microbes
   b. Wash hands thoroughly
   c. Sanitize hands after every absence from work station
   d. Avoid handling food with bare hands
   e. Do not squeeze or cough on food
   f. Keep clothes clean
   g. Wear hair net or hat
   h. Keep mice, flies, roaches, and other insects from the work area
   i. Use an approved cutting surface
   j. Do not smoke or chew in the area where food is processed

4. a. 5
   b. 1
   c. 2
   d. 4
   e. 3

5. a. Apparent immaturity
   b. Suspected presence of a disease
   c. Serious crippling
   d. Reaction to a tuberculin test
   e. Advanced stage of pregnancy
   f. High fever of undetermined cause

6.

Characteristics	*Bacteria*	*Molds*	*Yeast*
Prevalence	***Most***	Readily	Commonly
Host environment	Ideal	***Ideal***	Ideal
pH	4.8 to 8.0 (wide range)	Acid	Acid
Temperature	15° C to 60° C	Below 0° C	Below 0° C
Growth location	***Surface or interior***	Surface growth	Surface or interior
Oxygen requirement	***Anerobic and aerobic***	Aerobic	***anerobic and aerobic***
Vacuum package	Retards growth	***Prevents growth***	Retards growth
Harmful to health	***Both useful and harmful***	Not harmful	Not harmful
Presence of salt	***Will grow***	***Will grow***	***Will grow***
Thrive on protein	Yes	Yes	Yes
Easily seen	***No***	Yes	Yes
Cause odor	Yes	No	***Yes***
Moisture requirement	***High***	Low	Low

7. Performance skills evaluated to the satisfaction of the instructor.

SAUSAGES
UNIT VIII

UNIT OBJECTIVE

After completion of this unit, the student should be able to list the types of spices, meats, and casings used in making sausage. The student should be able to describe and demonstrate the steps in making sausage. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with sausage and ready to serve meats with the correct definitions.
2. List five facts in the history of sausage.
3. List the types of spices used in sausage production.
4. List four important factors about sausage meats.
5. List two types of sausage casings.
6. Describe the advantages of using binders in sausage.
7. Describe five steps of manufacturing sausage.
8. Describe six federal regulations in sausage making.
9. Demonstrate the ability to:
    a. Make fresh pork sausage.
    b. Make cooked salami.

SAUSAGES
UNIT VIII

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and job sheets.

   C. Discuss unit and specific objectives.

   D. Discuss information sheets.

   E. Demonstrate and discuss problems outlined in the job sheets.

   F. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheets and take notes.

   C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Job sheets

      1. Job Sheet #1—Make Fresh Pork Sausage

      2. Job Sheet #2—Make Cooked Salami

   D. Test

   E. Answers to test

II. References:

A. Bailey, J. W. *Encyclopedia of Labeling Meat and Poultry Products.* St. Louis: Meat Plant Magazine, 1976.

B. Gifford, Marie *Study Guide for Sausage and Ready-to-Serve Meat.* Chicago; Armour and Co., n.d.

C. Komarik, S. L.; Tressler, D. K.; and Long, Lucy *Food Products Formulary.* vol. 1. Westport, Connecticut: The AVI Publishing Co., Inc., Washington, D.C.: 1974.

D. *Manual of Meat and Poultry Inspection Procedures.* Washington D.C.: United States Department of Agriculture, Animal and Plant Health Inspection Service, 1977.

E. Romans, J. R., and Ziegler, P. T. *The Meat We Eat.* Danville, Illinois: The Interstate Printers and Publisher, Inc., 1974.

F. *Sausage and Chopped Meat.* Kansas City, Missouri: Koch and Company, n.d.

G. *Sausage and Ready-to-Serve Meats.* Chicago: Institute of Meat Packing, The University of Chicago, n.d.

SAUSAGES
UNIT VIII
INFORMATION SHEET

I. Terms and definitions

A. Sausage—Minced meat or a combination of meats blended with various seasonings and spices commonly stuffed in a casing or container

B. Fresh sausage—Made of chopped meats neither cured nor smoked

C. Uncooked smoked sausage—Finished in the smokehouse but is not cooked

D. Dry sausage—Requires special attention at every stage of processing; held for months under controlled conditions of temperature and humidity

E. Spices—Add zest and flavor to meats

F. Weasand meat—Muscular tissue around the lower part of gullet and upper part of the stomach of beef

G. Giblet—Meat from the diaphragm

H. Lean meat—Meat cuts with 80% or more lean meat by weight

I. Binder—Binds the meat fiber and sausage together

II. History

A. Oldest form of processed food

B. Developed independently by people in several countries in Europe

C. Smoked and cured sausages developed in northern Europe

D. Fresh sausage developed in southern Europe

E. People in United States eat 25 lbs per person

III. Spices used in sausage

A. Botanical spices from aromatic plants

1. Roots

2. Bark

3. Buds

4. Seeds

INFORMATION SHEETS

- B. Major true spices

  (NOTE: There are thirteen true spices.)
  - 1. Allspice
  - 2. Clove
  - 3. Black pepper
  - 4. White pepper
- C. Herbs
  - 1. Basil
  - 2. Sage
- D. Blends
  - 1. Chili powder
  - 2. Seasoning salts
- E. Embellishments
  - 1. Green pepper
  - 2. Pimiento

IV. Sausage meats

- A. Any flesh of any food animal may be used

  Examples: Pork, beef, veal, mutton
- B. Low profit cuts are best utilized

  Examples: Cheek meat, pork snouts, heart, liver, tongue
- C. Bull meat is valuable sausage material
- D. Weasnad and giblet meats are ideal because they are high in lean meat content

V. Sausage casings

- A. Natural or animal casing
- B. Synthetic casing

  (NOTE: Cellulose casings must be peeled off before eating.)

INFORMATION SHEET

VI. Advantages of using binders in sausage

(NOTE: Examples of binders are rice, corn, soybeans, and potatoes.)

- A. Absorb meat juices
- B. Take up fat that melts
- C. Prevent a percentage of shrinkage
- D. Reduce cost

VII. Steps of sausage manufacturing

- A. Selecting meat
  - 1. Free from bone and gristle
  - 2. Right proportion of fat and lean
- B. Chopping and mixing
  - 1. Chilled to about 28°F
  - 2. Chopped in grinder
  - 3. Ice added for texture
  - 4. Spices added
- C. Stuffing
  - 1. Packed into stuffing machines
  - 2. Tied immediately
- D. Linking
  - 1. Linking machine twists casings
  - 2. Care must be taken to prevent damage to the product
- E. Curing
  - 1. Cured to preserve meat
  - 2. Cured for flavor and color
- F. Smoking
  - 1. Used for flavor and color
  - 2. Before smoked, sprayed with cold water
  - 3. Stored in refrigeration
  - 4. Hardwood used

INFORMATION SHEET

G. Cooking

   1. Precooked as service to customer

   2. Cooked in thermostatically controlled cookers

   3. Steamed cooked at 155°F

H. Packaging

   1. Sprayed with cooled water

   2. Dried

   3. Packaged in cartons

VIII. Federal regulations

A. Addition of water

   1. Cooked or finished sausage—Should not exceed four times the protein content plus 10%

   2. Fresh sausage—Limited to four times the protein content plus 3%

B. Nitrite use

   1. Not more than ¼ oz. of nitrite per 100 lb. of meat

   2. Finished product not more than 156 ppm

C. Extenders

   1. Not more than 3.5% of cereal, vegetable, starch, or vegetable flour

   2. All additives shall be labeled

D. Fat—Not exceeding 30%

E. Red meat—Cooked sausages contain no more than 15% poultry

F. Casing

   1. Only animal casing from cattle, sheep, swine, and goats may be used

   2. Artificially colored casings have to be labelled as such

SAUSAGES
UNIT VIII

JOB SHEET #1—FRESH PORK SAUSAGE

I. Equipment

- A. Pork trim, 20 lbs.
- B. Table salt, 7 oz.
- C. Black pepper, 1 oz.
- D. Ground sage, 0.5 oz.
- E. Measuring scale
- F. Bowl or mixer
- G. Casings

II. Procedure

- A. Cut pork trim to allow for grinding
- B. Weigh out clean seasoning and mix
- C. Mix seasoning with meat
- D. Grind seasoned meat

  (NOTE: Use course grinder plate.)
- E. Regrind through a ⅜'' plate
- F. Stuff in casings

Ingredient	*Weight*	*Price/Lb.*	*Total Price*
Pork Trim	20 lb.	______	______
Table Salt	7 oz.	______	______
Black Pepper	1 oz.	______	______
Ground Sage	0.5 oz.	______	______
		Grand Total	______
		Cost/lb.	______

SAUSAGE
UNIT VIII
JOB SHEET #2—COOKED SALAMI

I. Equipment

   A. Meats

      1. Lean beef, 10 lbs.
      2. Extra lean pork, 7.5 lbs.
      3. Pork, 30% lean, 7.5 lbs.
      4. Soy protein, 0.5 lb.

   B. Seasonings

      1. Ground cordamon, 7 g.
      2. Ground black pepper, 49 g.
      3. Garlic flakes, ground, 7 g.

   C. Cure

      1. Salt, 300 g.
      2. Nitrite, 1.6 g.
      3. Sugar, 58 g.
      4. Sodium as corbate, 4 g.
      5. Casings
      6. Water, 5 lbs.

   D. Meat grinder

   E. Mixer

II. Procedure

   A. Grind beef through ½'' plate and then through ⅜'' plate

   B. Grind pork through ⅜'' plate

   C. Place meat and cure in mixer

   D. Add water

   E. Mix ingredients

   F. Add seasoning and mix

   G. Stuff mixture into casing

JOB SHEET #2

H. Hang product overnight in 30°F

I. Place in 180°F smokehouse

J. Bring to internal temperature of 150° F, taking eight hours

K. Leave overnight at 70°F

L. Place in cooler

Ingredient	*Weight*	*Price/lb.*	*Total Price*
Meat			
Lean beef	10 lbs.		
Extra lean pork	7.5 lbs.		
Pork 30% lean	7.5 lbs.		
Soy protein	.5 lb.		
Seasoning			
Ground cordamon	7 g.		
Ground black pepper	49 g.		
Garlic flakes ground	7 g.		
Cure			
Salt	300 g.		
Nitrite	1.6 g.		
Sugar	58 g.		
Na as corbate	4 g.		
Casings			
Water	5 lbs.		
		Grand total	
		Cost per pound	

SAUSAGE
UNIT VIII

TEST

1. Match the terms on the right to the correct definitions.

____ a. Minced meat or a combination of meats blended with various seasonings and spices commonly stuffed in a casing or container

____ b. Binds the meat fiber and sausage together

____ c. Finished in the smokehouse but is not cooked

____ d. Requires special attention at every stage of processing; held for months under controlled conditions of temperature and humidity

____ e. Meat cuts with 80% or more lean meat by weight

____ f. Meat from the diaphragm

____ g. Made of chopped meats neither cured nor smoked

____ h. Muscular tissue around the lower part of gullet and upper part of the stomach of beef

____ i. Add zest and flavor to meat

1. Sausage
2. Fresh sausage
3. Uncooked smoked sausage
4. Dry sausage
5. Spices
6. Weasand meat
7. Giblet
8. Lean meat
9. Binder

2. List five facts in the history of sausage.

a.

b.

c.

d.

e.

3. List two types of spices used in making sausage under each of the categories named below.

   a. True spices

      1.

      2.

   b. Herbs

      1.

      2.

4. List four important factors about sausage meats.

   a.

   b.

   c.

   d.

5. List two types of sausage casings.

   a.

   b.

6. Describe the advantages of using binders in sausage.

7. Describe the below steps in manufacturing sausage.

   a. Selecting meat—

   b. Chopping and mixing—

   c. Stuffing—

   d. Linking—

   e. Smoking—

8. Describe federal regulations in sausage making.
   a. Addition of water

   b. Nitrite use

   c. Extenders

   d. Fat

   e. Red meat

   f. Casing

9. Demonstrate the ability to:
   a. Make fresh pork sausage.
   b. Make cooked salami.

SAUSAGE
UNIT VIII

ANSWERS TO TEST

1. a. 1
   b. 9
   c. 3
   d. 4
   e. 8
   f. 7
   g. 2
   h. 6
   i. 5

2. a. Oldest form of processed food
   b. Developed independently by people in several countries in Europe
   c. Smoked and cured sausages developed in northern Europe
   d. Fresh sausage developed in southern Europe
   e. People in United States eat 25 lb per person

3. Any two of the following under each category:
   a. True Spieces
      1. Allspice
      2. Clove
      3. Black pepper
      4. White pepper
   b. Herbs
      1. Basil
      2. Sage

4. a. Any flesh of any food animal may be used
   b. Low profit cuts are best utilized
   c. Bull meat is valuable sausage material
   d. Weasand and giblet meats are ideal because they are high in lean meat content

5. a. Natural or animal casing
   b. Synthetic casing

6. Description should include:
   a. Absorb meat juices

- b. Take up fat that melts
- c. Prevent a percentage of shrinkage
- d. Reduce cost

7. Description should include:
   - a. Selecting meat
     1. Free from bone and gristle
     2. Right proportion of fat and lean
   - b. Chopping and mixing
     1. Chilled to about 28°F
     2. Chopped in grinder
     3. Ice added for texture
     4. Spices added
   - c. Stuffing
     1. Packed into stuffing machines
     2. Tied immediately
   - d. Linking
     1. Linking machine twists casings
     2. Care must be taken to prevent damage to the product
   - e. Smoking
     1. Used for flavor and color
     2. Before smoked, sprayed with cold water
     3. Stored in refrigerator
     4. Hardwood used
8. Description should include:
   - a. Addition of water
     1. Cooked or finished sausage—Should not exceed four times the protein content plus 10%

        2. Fresh sausage—Limited to four times the protein content plus 3%

    b. Nitrite use

        1. Not more than ¼ oz. of nitrate per 100 lb of meat

        2. Finished product not more than 156 ppm

    c. Extenders

        1. Not more than 3.5% of cereal, vegetable, starch, or vegetable flour

        2. All additives shall be labeled

    d. Fat—Not exceeding 30%

    e. Red meat—Cooked sausages contain no more than 15% poultry

    f. Casing

        1. Only animal casing from cattle, sheep, swine, and goats may be used

        2. Artificially colored casings have to be labeled as such

9. Performance skill evaluated to satisfaction of instructor.

PACKAGING AND PRESERVATION
UNIT IX

UNIT OBJECTIVE

After completion of this unit, the student should be able to list the methods of preservation, list types of packaging materials, and describe the importance of boxed beef and convenience processing in the meat processing industry. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with packaging and preservation of meat products to the correct definition.
2. List six methods of preservation.
3. List five traits of spoilage.
4. List four types of packaging materials.
5. Select from a list characteristics of a good packaging material.
6. Distinguish between packaging by the types of meat processing.
7. Distinguish between the advantages and disadvantages of a retort pouch.
8. Describe the importance of cellophane.
9. Describe the importance of boxed beef.
10. Describe the process of canning meat processing.
11. Demonstrate the ability to:
    a. Raw pack meat.
    b. Hot pack meat.

PACKAGING AND PRESERVATION
UNIT IX

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and job sheets.

   C. Discuss unit and specific objectives.

   D. Discuss information sheets.

   E. Demonstrate and discuss procedures outlined in the job sheet.

   F. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheets.

   C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Job sheets

      1. Job Sheet #1—Raw Pack Meat

      2. Job Sheet #2—Hot Pack Meat

   D. Test

   E. Answers to test

II. References:

A. Blakesley, C. Newlon. "Organic Vaper Preservation through Packaging Films." *Journal of Food Technology,* 1975.

B. *Boxed Beef . . . Can It Work For You? Chicago:* Meat Industry, 1975.

C. Carpenter, Zerle L. "*Film Packaging Helps Protect Product But Product Is No Inert.* 1975.

D. *Choosing the Pack to Suit the Product." Chicago:* Food Manufacture, 1975.

PACKAGING AND PRESERVATION
UNIT IX
INFORMATION SHEET

I. Terms and definitions

A. Halophiles—Species of bacteria able to survive at high salt concentrations

B. Aerobic—Species of bacteria able to survive with oxygen present

C. Anerobic ·Species of bacteria able to survive without oxygen present

D. Refrigeration—Holding meat and other products at or near 0°C

E. Freezing—Holding meat and other products at 0°F (−18°C)

F. Thaw rigor—Meat frozen prerigor and thawed at warm temperatures

G. Acidity—Refers to pickling; an acid condition unfavorable to bacterial growth

H. Boxed beef—Large, boneless cuts of meat placed in barrier bags under vacuum pressure then sealed, boxed, and frozen

I. Rancidity—Oxidation of fatty acids results in the production of off-flavors and odors

J. Freezer burn—Sublimation of moisture from frozen surface of meat

K. Canning—Preservation method in which carefully selected and prepared food is sealed in a container

L. Retort pouch—Newest form of packaging; consists of three layers: polyester for strength, aluminum foil as a moisture, gas, and light barrier and polyolifin heat seal and food contact

M. Salting—Salt has an effect on osmotic pressure which causes water to be withdrawn

N. Smoking—Preserves meat by drying the surface, preventing microbial growth

O. Sugar—High concentration of sugar exerts a high osmotic pressure and will cause water to be withdrawn from microorganisms

P. Vacuum packages—Excludeair

Q. Freeze drying—Removal of moisture from a product and will not support the growth of most microbes

R. Oxymyoglobin—Gives meat its bright reddish color

S. Lethal temperature—Temperature at which microorganism are killed

INFORMATION SHEET

II. Methods of preservation

  A. Refrigeration

  B. Freezing

  C. Thermal processing (canning)

  D. Salting

  E. Smoking

  F. Spicing

  G. Acidity

  H. Sugar

  I. Exclusion of air

  J. Freeze drying

  K. Radiation

III. Traits of spoilage

  A. Foul odors

  B. Discoloration

  C. Decomposition

  D. Slime produced

  E. Located on surface

IV. Types of packaging materials

  A. Films

  (NOTE: Films are moisture resistant, sealable, anchor well to products, and are transparent.)

  B. Foils

  C. Laminates

  D. Coated sheets

INFORMATION SHEET

V. Characteristics of a good packaging material

   A. Oxygen barrier

   B. Moisture barrier

   C. Moldable and pliable at low temperatures

   D. Flavorless and tasteless

   E. High wet strength

   F. Resistant to scuffing and tearing

   G. Adaptable to labeling

VI. Characteristic wrapping
   A. Fresh meat

      1. Transparent films to display product

      2. High oxygen permeability to allow formation of oxymyogloblin

      3. Moisture proof

      4. Durable at refrigerated temperature

   B. Frozen meat

      1. Oxygen and moisture impermeable

      2. Exclude odors and flavors

      3. Strength and durability at freezer temperatures

   C. Cured meat
      1. Moisture proof

      2. Impermeable to oxygen

      3. Nontransparent

VII. Advantages and disadvantages of retort pouch
   A. Advantages

      1. Less time to reach lethal temperature

      2. Does not require refrigeration or freezing

      3. Pouched product can be reconstituted by heating in boiling water

INFORMATION SHEET

4. Pouch can be opened by tearing across top of can
5. Requires no more space than canned food

B. Disadvantages

1. Limit to size
2. Slow process to fill and seal
3. Requires overwrapping, such as a carton

VIII. Cellophane

A. Introduced in 1908

B. Very flexible

C. Moisture vapor barrier

D. Transparent

E. Greaseproof

F. Coated with moisture-resistant lacquer

G. Very economical to use

H. Used to laminate paper or film to protect from mechanical damage

I. Cost 97¢ to $1.20 lb

IX. Boxed beef

A. Easier to prepare

B. Saves space in transportation and storage

C. Processor must have a uniform type of product available to sell

D. Tailored cuts to meet customer's need

E. Packaging materials available

1. Right kind
2. Right size

X. Canning

A. Heat the contents to produce an undesirable condition for microbes

B. Steam pressure only way to acquire high temperatures

C. Does not improve nutritive value

D. Keep at 55° to 65°F (13° to 18°C)

E. Can be frozen

PACKAGING AND PRESERVATION
UNIT IX
JOB SHEET #1—RAW PACKING MEAT

I. Equipment

   A. Meat

   B. Water

   C. Salt

   D. Meat thermometer

   E. Glass jar

   F. Jar lids

   G. Pressure cooker

II. Procedure

   A. Cut meat from bone

   B. Trim fat

   C. Clean glass jars and lids

   D Remove any soap and rust spots

   E. Place salt in empty jar

   Example: ½ teaspoon in No. 2 can

   F. Pack glass jar with raw lean meat

   G. Leave 1" head space in can

   H. Add small amount of water

   I. Set open glass jar in large vessel

   (NOTE: Water in vessel should be 2" from top of jar.)

   J. Cover vessel and heat to slow boil

   K. Insert thermometer

   (NOTE: Meat is ready at 177°F.)

   L. Press meat ½" below rim

   M. Place lid on each glass jar and seal

JOB SHEET #1

N. Place sealed glass jars in pressure chamber

O. Steam pressure at 10 lbs.

(NOTE: No. 2 can should be steamed for 50 minutes.)

P. Turn off steam

Q. Let pressure down slowly

R. Cool in running water

S. Check for leaks

PACKAGING AND PRESERVATION
UNIT IX

JOB SHEET #2—HOT PACK MEAT

I. Equipment

  A. Shallow pan and lid

  B. Meat

  C. Water

  D. Salt

  E. Steam pressure cooker

  F. Can or jars

II. Procedure

  A. Place meat in large shallow pan

  B. Add ½" of water to keep meat from sticking to pan

  C. Cover pan and precook

  D. Add salt

  Example: ½ teaspoon to No. 2 can

  E. Pack hot meat in can

  F. Leave 1" head space

  G. Cover meat with juice

  H. Place lid on can and seal

  I. Cook in steam chamber

  J. Remove from steam chamber and cool

PACKAGING AND PRESERVATION
UNIT IX

TEST

1. Match the terms on the right to the correct definitions.

___ a. Holding meat and other products at 0° F (−18° C)

___ b. Preservation method in which carefully selected and prepared food is sealed in a container

___ c. Species of bacteria able to survive with oxygen present

___ d. Sublimation of moisture from frozen surface of meat

___ e. Meat frozen prerigor and thawed at warm temperatures

___ f. Species of bacteria able to survive at high salt concentrations

___ g. Species of bacteria able to survive without oxygen present

___ h. Large, boneless cuts of meat placed in barrier bags under vacuum pressure, then sealed, boxed, and frozen

___ i. Holding meat and other products at or near 0° C

___ j. Refers to pickling; an acid condition unfavorable to bacterial growth

___ k. Oxidation of fatty acids results in the production of off-flavors and odors

___ l. Newest form of packaging; consist of three layers: polyester for strength, aluminum foil moisture gas and lighter barrier, and polyolifin heat seal and food contact

1. Halophiles
2. Aerobic
3. Anerobic
4. Refrigeration
5. Freezing
6. Thaw rigor
7. Acidity
8. Boxed beef
9. Rancidity
10. Freezer burn
11. Canning
12. Retort pouch
13. Salting
14. Smoking
15. Sugar
16. Vacuum packaging
17. Freeze drying
18. Oxymyoglobin
19. Lethal temperature

____ m. Excluding air

____ n. Temperature at which microorganisms are killed

____ o. Salt has an effect in osmotic pressure which causes water to be withdrawn

____ p. Gives meat its bright reddish color

____ q. Removal of moisture from a product and will not support the growth of most microbes

____ r. High concentration of sugar exerts a high osmotic pressure and will cause water to be withdrawn from microorganisms

____ s. Preserves meat by drying the surface preventing microbial growth

2. List six methods of preservation.

   a.

   b.

   c.

   d.

   e.

   f.

3. List five traits of spoilage.

   a.

   b.

   c.

   d.

   e.

4. List four types of packaging materials.

   a.

   b.

   c.

   d.

5. Select from a list characteristics of a good packaging material by placing an "X" by the true characteristics.

____a. Oxygen barrier

____b. Water strength

____c. Moisture barrier

____d. Availability

____e. Cost of packaging materials

____f. Flavorless and tasteless

____g. Adaptable to labeling

6. Distinguish between characteristics of packaging needed by the types of processed meat. Place an "F" in front of those packaging characteristics of fresh meat, an "Fr" for those of frozen meat, and a "C" for the characteristics of cured meat.

____ a. Impermeable to oxygen

____ b. Excludes odors and flavors

____ c. Durable at refrigerated temperature

____ d. Strength and durability at freezer temperatures

____ e. Non transparent

____ f. High oxygen permeability to allow formation of oxymyoglobin

7. Distinguish between the advantages and disadvantages of a retort pouch. Place an "X" in front of the statements describing advantages.

____ a. Less time reach lethal temperature

____ b. Does not require refrigeration or freezing

____ c. Slow process to fill and seal

____ d. Pouched product can be reconstituted by heating in boiling water

____ e. Slow process to fill and seal

____ f. Pouch can be opened by tearing across top of can

____ g. Requires over wrapping such as a carton

____ h. Limit to size

8. Describe the importance of cellophane.

9. Describe the importance of boxed beef.

10. Describe the process of canning meat processing.

11. Demonstrate the ability to:

    a. Raw pack meat.

    b. Hot pack meat.

PACKAGING AND PRESERVATION
UNIT IX
ANSWERS TO TEST

1. a. 5
   b. 11
   c. 2
   d. 10
   e. 6
   f. 1
   g. 3
   h. 8
   i. 4
   j. 7
   k. 9
   l. 12
   m. 18
   n. 19
   o. 13
   p. 18
   q. 17
   r. 15
   s. 14

2. Any six of the following:
   a. Refrigeration
   b. Freezing
   c. Thermal processing (canning)
   d. Salting
   e. Smoking
   f. Spicing
   g. Acidity
   h. Sugar
   i. Exclusion of air
   j. Freeze drying
   k. Radiation

3. a. Foul odor
   b. Discoloration
   c. Decomposition
   d. Slime produced
   e. Located on surface

4. a. Films
   b. Foils
   c. Laminates
   d. Coated sheets
5. a, c, f, g
6. a. C
   b. Fr
   c. F
   d. Fr
   e. C
   f. F
7. a, b, d, f
8. Description should include:
   a. Introduced in 1908
   b. Very flexible
   c. Moisture vapor barrier
   d. Transparent
   e. Greaseproof
   f. Coated with moisture resistant lacquer
   g. Very economical to use
   h. Use to laminate paper or used to protect from mechanical damage
   i. Cost 97¢ to $1.20/lb.
9. Description should include:
   a. Easier to prepare
   b. Saves space in transportation and storage
   c. Processor must have a uniform type of product available to sell

- d. Tailored cuts to meet customer's need
- e. Packaging materials available
  - 1) Right kind
  - 2) Right size

10. Canning
    - a. Heat contents produces an undesirable condition for microbes
    - b. Steam pressure only way to acquire high temperatures
    - c. Does not improve nutritive value
    - d. Keep at 55° to 65° F
    - e. Can be frozen

11. Performance skills evaluated to satisfaction of instructor.

BUYING MEAT AND PORTION CONTROL
UNIT X

UNIT OBJECTIVE

After completion of this unit, the student should be able to select from a list factors in buying ground beef, list factors effecting meat prices, and describe the meat pricing guides used in the meat processing industry. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Define terms associated with buying meat and portion control.
2. Select from a list the factors to consider when buying ground beef.
3. List four factors effecting meat price.
4. Arrange in order the procedures in daily pricing of meat.
5. List five advantages to portion controls.
6. Describe portion control services.
7. Describe two meat pricing guides.

BUYING MEAT AND PORTION CONTROL
UNIT X

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information sheet.

   C. Discuss unit and specific objectives.

   D. Discuss information sheet.

   E. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheet.

   C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Test

   D. Answers to test

II. References:

   A. *Buying Beef for the Eating Out Business*, Armour and Company, Chicago, Ill.

   B. *Institutional Meat Purchase Specifications for Fresh Beef*, Series 100, "Lamb—Series 200"—Series 300"; "Pork—Series 400"; Portion Cut.

   C. *Meat Products*—Series 1000"; "Cured Meat—Series 500"; "Sausage Series—800"; January 1975, U.S. Dept. of Agriculture, Washington, D.C.

   D. *Meat Buyers' Guide to Portion Control Meat Cuts*, 1970, National Association of Meat Purveyors, Chicago, Ill.

E. *Meat in the Food Service Industry*, National Livestock and Meat Board, Chicago, Ill.

F. "Meat Service Report", *Hotel; Restaurant; Institutional*, The National Provisioner, Chicago, Ill.

G. "The Meat Sheet", *Meat Sheet Inc.*, The Total Prince Report, Elmhurst, Ill.

H. *Merchandising Beef Ribs*, National Livestock and Meat Board, Chicago, Ill.

I. *101 Meat Cuts, A Guide to Meat Selection and Care*, National Livestock and Meat Board, Chicago, Ill.

J. "The Yellow Sheet," *Daily Market and News Service*, The National Provisioner, Chicago, Ill.

BUYING MEAT AND PORTION CONTROL
UNIT X
INFORMATION SHEET

I. Terms and definitions

   A. Portion control—Processing of a given food item into an exact number of portions per pound

   B. Purveyor—One who sells and distributes meat for a meat company

II. Buying ground beef

   A. Fat content

   B. Young or old animal

   C. Cereal added

   D. Water added

   E. Grind size

   F. Package size

   G. Arrival temperature

   H. Arrival date

III. Factors effecting meat price

   A. Grain price

   B. Feeder calf price

   C. Cow numbers

   D. Weather

IV. Daily pricing procedure

   A. Check market price

   B. Get three local prices

   C. Look into quality

   (NOTE: Ground beef from choice carcasses will sell for a different price than ground beef from a bull carcass.)

   D. Select produce flavor

INFORMATION SHEET

V. Advantages of portion control

  A. No waste

  B. Little preparation labor

  C. No skilled personnel

  D. No dissatisfied customers

  E. No leftover

  F. Less refrigeration

  G. Smaller inventory

  H. No need to be out of any particular food item

  I. No hidden costs

VI. Considerations of portion control services

  A. Meat industry must develop meat control service as the poultry industry

  B. Businessman must understand the meat industry

  C. Sell service instead of selling meat

  D. Net profit can be increased by better organization

    1. Buying process

    2. Storage

    3. Sales

    4. Delivery

VII. Pricing guides

  A. Meat sheets

    1. Pink sheet

    2. Published by Meat Market Research Service, Elmhurst, Ill.

    3. Reports beef, pork, and lamb prices

    4. Prices based on previous day's transactions

INFORMATION SHEET

B. Daily market and news service

   1. Yellow sheet
   2. Price sides, quarters, and primals
   3. Published by Nation Provisioner in Chicago

C. Meat service report

   1. Green sheet
   2. Reports price of: prime grade, choice grade, good grade and utility grade

BUYING MEAT AND PORTION CONTROL
UNIT X
TEST

1. Define the following terms associated with buying meat and portion control.

   a. Portion control

   b. Purveyors

2. Select from the list below factors to consider when buying ground beef by placing an "X" by the true factors.

   ____ a. Fat content

   ____ b. Yound and old animals

   ____ c. Cereal deleted

   ____ d. Water added

   ____ e. Grind size

   ____ f. Package wrap

   ____ g. Arrival temperature

   ____ h. Transportation

3. List factors effecting meat price.

   a.

   b.

   c.

   d.

4. Arrange in order the procedure in daily pricing of meat.

   ____ a. Look into quality

   ____ b. Select product flavor

   ____ c. Check three local prices

   ____ d. Get three local prices

5. List five advantages to portion control.

   a.

   b.

   c.

   d.

   e.

6. Describe portion control services.

7. Describe the price guides listed below.

   a. Meat sheets

   b. Meat service report

BUYING MEAT AND PORTION CONTROL
UNIT X

ANSWERS TO TEST

1. a. Portion control—Processing of a given food item into an exact number of portions per pound

   b. Purveyor—One who sells and distributes meat for a meat company

2. a, b, d, e, g

3. a. Grain price

   b. Feeder calf price

   c. Cow numbers

   d. Weather

4. a. 3

   b. 4

   c. 2

   d. 1

5. Any five of the following:

   a. No waste

   b. Little preparation labor

   c. No skilled personnel

   d. No dissatisfied customers

   e. No leftover

   f. Less refrigeration

   g. Smaller inventory

   h. No need to be out of any particular food item

   i. No hidden costs

6. Description should include:
    a. Meat industry must develop meat control service
    b. Business man must understand the meat industry
    c. Sell service instead of selling meat
    d. Net profit can be increased by better organization
        1) Buying process
        2) Storage
        3) Sales
        4) Delivery
7. Descriptions should include:
    a. Meat sheets
        1) Pink sheet
        2) Published by Meat Market Research and Reporting Service, Elmhurst, Ill.
        3) Reports beef, pork, and lamb prices
        4) Prices based on previous day's transactions
    b. Meat service report
        1) Green report
        2) Reports price of Prime grade, Choice grade, Good grade, and Utility grade

POULTRY
UNIT XI

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify the parts of a chicken carcass, list poultry quality factors and list poultry classes, and describe the difference between male and female poultry. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with poultry with the correct definitions.
2. Identify the nine parts of a chicken.
3. List five poultry quality factors.
4. List six poultry classes.
5. Describe the difference between male and female poultry.
6. Describe four products from poultry.

POULTRY
UNIT XI
SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information sheet.

   C. Make transparency.

   D. Discuss unit and specific objectives.

   E. Discuss information sheet.

   F. Give test.

II. Student

   A. Read objectives.

   B. Study information sheets.

   C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Transparency master: TM 1—Parts of the Chicken

   D. Test

   E. Answers to test

II. References:

   A. Baker, R. C., and Hall, Killing, Ithaca, New York: *Plucking and Cooking Poultry.* Extension Bulletin, New York State College.

   B. Mountney, G. J. *Poultry Products Technology.* Westport, AVI Connecticut; AVI Publishing Co., Inc., 1976.

   C. *Poultry Grading Manual: Agriculture Handbook No. 3* Washington, D.C.: Department of Agriculture, Consumer and Marketing Service, n.d.

POULTRY
UNIT XI
INFORMATION SHEET

I. Terms and definitions

A. Conformation—Ratio of lean meat to fat and bone

B. Grading—Refers to ranking procedure whereby the carcasses are assigned a grade

C. Condition—Refers to the wholesomeness of the carcass

D. Cornish game hen—Chicken of either sex, 5 to 7 weeks of age

E. Roaster—Chicken of either sex, 3 to 5 months of age

F Ready to cook—Fresh poultry meat

G. USDA—United States Department of Agriculture

H. Class—Group of poultry that has one or more distinctive characteristics

Example: Age

II. Chicken parts (Transparency 1)

A. Ribs

B. Back

C. Breast

D. Wing

E. Wish bone

F. Thigh

G. Miscellaneous parts

H. Wing

I. Wishbone

J. Breast

III. Poultry quality factors

A. Conformation

B. Fleshing

C. Fat

D. Pin feather

E. Defects

INFORMATION SHEET

IV. Poultry classes

- A. Species
- B. Sex
- C Age
- D. Grade
- E. Weight
- F. Condition

V. Effects of sex on poultry

- A. Female
    1. Smaller in size
    2. Tender
    3. Lighter in size
- B. Male
    1. Larger
    2. Courser skin appearance
    3. Less fat
    4. Courses lean

VI. Poultry products

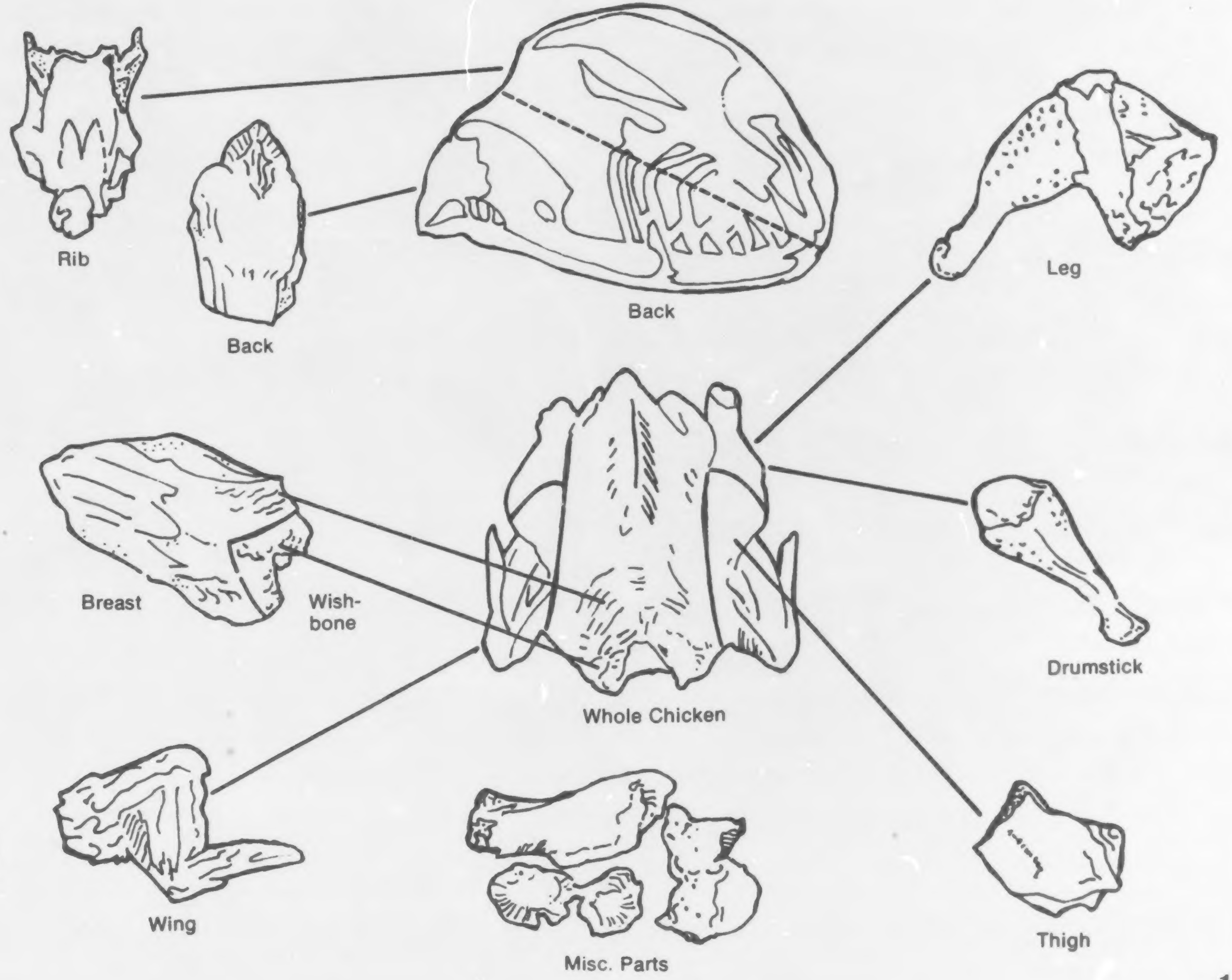
- A. Precooked, frozen, diced poultry
    1. Obtained in polybags
    2. Equal amounts of white and dark
    3. Used in salads, creamed dishes, and exotic recipes
- B. Frozen pies
    1. Amount of filler is a problem
    2. USDA requires 14% cooked chicken by weight
- C. Frozen dinner—Use fried chicken and sliced chicken and turkey
- D. Frozen fried chicken

INFORMATION SHEET

1. Dry, soggy chicken is a problem
2. Breading mix crumbles off

CHICKEN PARTS

(Skelton)


Rib
Back
Back
Leg
Breast
Wish-bone
Drumstick
Whole Chicken
Wing
Misc. Parts
Thigh

TM 1

AP-223-A

POULTRY
UNIT XI
TEST

1. Match the terms on the right to the correct definitions.

____ a. Group of poultry that has one or more distinctive characteristics

____ b. United States Department of Agriculture

____ c. Fresh poultry meat

____ d. Chicken of either sex, 3 to 5 months of age

____ e. Ratio of lean meat to fat and bone

____ f. Chicken of either sex, 5 to 7 weeks of age

____ g. Refers to the wholesomeness of the carcass

____ h. Refers to the ranking procedure whereby the carcasses are assigned a grade

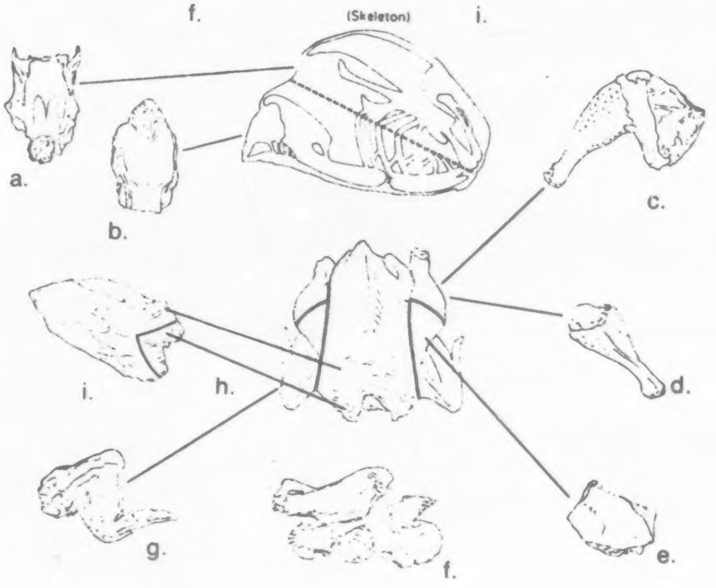
1. Conformation
2. Grading
3. Condition
4. Cornish game hen
5. Roaster
6. Ready to cook
7. USDA
8. Class

2. Identify the parts of the chicken in the illustration below. Write the correct names in the blanks provided.

a. d. g.

b. e. h.

c. f. i.



3. List poultry quality factors.

   a.

   b.

   c.

   d.

   e.

4. List six poultry classes.

   a.

   b.

   c.

   d.

   e.

   f.

5. Describe the difference between male and female poultry.

6. Describe the four poultry products listed below.

   a. Precooked frozen diced poultry

   b. Frozen pies

   d. Frozen dinner

   d. Frozen fried chicken

POULTRY
UNIT XI
ANSWERS TO TEST

1. a. 8
   b. 7
   c. 6
   d. 5
   e. 1
   f. 4
   g. 3
   h. 2

2. a. Ribs
   b. Back
   c. Leg
   d. Drumstick
   e. Thigh
   f. Miscellaneous parts
   g. Wing
   h. Wishbone
   i. Breast

3. a. Conformation
   b. Fleshing
   c. Fat
   d. Pin feathers
   e. Defects

4. a. Species
   b. Sex
   c. Age
   d. Grade
   e. Weight
   f. Condition

5. Description should include:
   a) Female
      1) Smaller in size
      2) Tender
      3) Lighter in size

- b. Male
  - 1) Larger
  - 2) Courser skin appearance
  - 3) Less fat
  - 4) Courser lean

6. Description should include:
   - a. Precooked, frozen, diced poultry
     - 1) Obtained in polybags
     - 2) Equals amounts of white and dark
     - 3) Used in salads, creamed dishes and exotic recipes
   - b. Frozen pies
     - 1) Problem amount of filler
     - 2) USDA requires 15% cooked chicken by weight
   - c. Frozen dinner— Use fried chicken and sliced chicken and turkey
   - d. Frozen fried chicken
     - 1) Problem dry soggy chicken
     - 2) Breading mix crumbles off

WOOL PROCESSING
UNIT XII

UNIT OBJECTIVE

After the completion of this unit, the student should be able to list breeds of sheep by the type of wool they produce, the characteristics of wool, and the impurities found in wool. The student should be able to list the uses of wool and the factors that affect the quality of wool as well as compute wool prices. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms used in wool production with the correct definition.
2. Identify the three types of wool fibers.
3. List three fine wool breeds of sheep.
4. Select six medium wool breeds of sheep.
5. Select four long wool breeds of sheep.
6. Select three of the crossbred wool breeds of sheep.
7. List five characteristics of wool.
8. List two major uses of wool.
9. List the types of impurities.
10. Apply the rule to compute prices of grease and clean wool.
11. Select factors affecting quality of wool.
12. Describe three classes of apparel wool.
13. Describe the difference between worsted and woolen fabrics.
14. Arrange in order eleven steps involved in the manufacturing process of wool.
15. Describe one grading system.

WOOL PROCESSING
UNIT XII
SUGGESTED ACTIVITIES

I. Instructor:

- A. Provide students with objective sheet.
- B. Provide students with information and assignment sheets.
- C. Make transparencies.
- D. Discuss unit and specific objectives.
- E. Discuss information and assignment sheets.
- F. Arrange a field trip to show students different wool breeds of sheep and show sheep being sheared.
- G. Bring in samples of grease and clean wool.
- H. Bring in samples of different wool fabrics.
- I. Shear sheep.
- J. Judge wool.
- K. Visit lamb farm.
- L. Visit Pendleton Plant.
- M. Give test.

II. Students:

- A. Read objectives.
- B. Study information sheets.
- C. Complete assignment sheet and turn in to instructor for grading.
- D. Participate in field trip.
- E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objective sheet
- B. Information sheets

C. Transparency

TM #1—Magnified Wool Fibers

D. Assignment sheet #1—Calculate Wool Prices For Clean or Grease Basis.

E. Answers to assignment sheet

F. Test

G. Answers to test

II. References:

A. Ensminger, M. E. *Animal Science.* Danville, Illinois: The Interstate Printers and Publishers, Inc., 1977.

B. Scott, George. *The Sheepman's Production Handbook.* Denver, Colorado: Abegg Printing, 1974.

C. Johnson, Dr. LeRoy. Notes from class at University of Wyoming.

WOOL PROCESSING
UNIT XII

INFORMATION SHEET

I. Terms and definitions

   A. Wool—Natural protein fiber that is hydroscopic

   B. Fleece—Wool that has been removed from a sheep

   C. Shear—Process of removing a fleece from a sheep

   D. Clip—One fleece from a sheep or all the fleeces from a flock or all the fleeces from a state or all the fleeces from a country

   E. Wool breed—Refers to the fineness of wool that a particular breed of sheep will produce on the average

   F. Crossbred wool breed—Medium wool breed that is the result of a cross between a fine wool breed and a long wool breed, especially adapted to the western range

   G. Yolk—Grease and sweat salts found in unscoured wool

   H. Grease wool—Refers to impurities found in unscoured wool, excluding insoluble matter

   I. Scoured wool—Wool that has undergone a chemical and mechanical cleaning process

   J. Shrink—Percentage of impurities found in unscoured wool, excluding insoluable impurities

   K. Yield—Percentage of clean wool after scouring, including insoluable impurities

   L. Bagged—Wool that has been sheared and placed in burlap bags for shipment

   M. Coring—Sampling of bagged wool to determine the grade of wool in the bag

INFORMATION SHEET

II. Types of wool fibers
  A. Fine

  B. Coarse

  C. Medium

III. Fine wool breeds
  A. American Merino

  B. Debouillet

  C. Delaine Merino

  D. Rambouillet

VI. Medium wool breeds
  A. Cheviot

  B. Dorset

  C. Hampshire

  D. Montadale

  E. North Country Cheviot

  F. Oxford

  G. Shropshire

  H. Southdown

  I. Suffolk

  J. Tunis

V. Long wool breeds
  A. Cotswold

  B. Leicester

  C. Lincoln

  D. Romney

VI. Crossbred wool breeds
  A. Columbia

  B. Corriedale

INFORMATION SHEET

   C. Panama

   D. Tailless

   E. Targhee

VII. Characteristics of wool

   A. Hydroscopic
   B. Generates heat in itself
   C. Superior insulator
   D. Lightweight
   E. Elastic
   F. Durable
   G. Strong
   H. Will not burn by itself

VIII. Uses of wool

   1. Carpet wool
   2. Apparel wool

IX. Types of wool impurities

   A. Natural (grease)
   B. Aquired (animal, vegetable, and mineral matter)
   C. Moisture (water, a hidden shrink factor)
   D. Applied (paint brands)

X. Price computation

   A. Wool is sold on a grease or clean basis.
   B. Must estimate the percent shrink
   C. Sell on the clean basis, pay transportation costs.

Example:
Given: 10 pounds grease wool; $.70 a pound 55% shrink
Find:
Total price: 10 pounds × $.70 = $7.00
Yield: 10 pounds × .55% = 5.5 pounds grease
10 pounds −5.5 pounds grease = 4.5 pounds clean wool
Clean price: $\frac{\$7.00}{4.5 \text{ pounds clean wool}}$ = $1.55 pound

INFORMATION SHEET

XI. Factors affecting the quality of wool

  A. Length

  B. Density

  C. Diameter

XII. Classes of apparel wool

  A. Combing or staple

    1. Longest fibers

    2. Make worsted cloth

  B. French combing

    1. Medium length fibers

    2. Worsted cloth using a special process

  C. Clothing

    1. Shortest fibers

    2. Woolen cloth

XIII. Types of fabrics

  A. Worsted

    1. Long fibers

    2. Have been combed and carded

  B. Woolen

    1. Short fibers

    2. Carded but not combed

INFORMATION SHEET

XIV. Manufacturing process of wool

1. Sorting
2. Dusting and opening
3. Scouring
4. Drying
5. Carbonizing or bur picking
6. Blending, oiling, and mixing
7. Carding
8. Combing
9. Spinning
10. Weaving or knitting
11. Dyeing and finishing

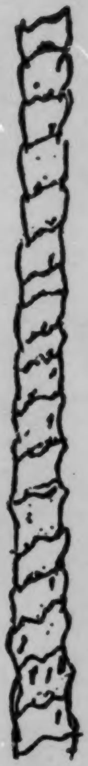
XV. Wool grading systems

A. Numerical count system—Based on the number of hanks one pound of wool will spin (NOTE: One hank equals 560 yards.)

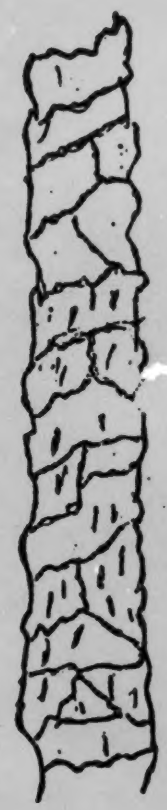
B. Blood system

    1. Divides wool into classes from fine to coarse
    2. Based on the amount of Merino blood in the sheep
    3. Correlated to the diameter of the wool

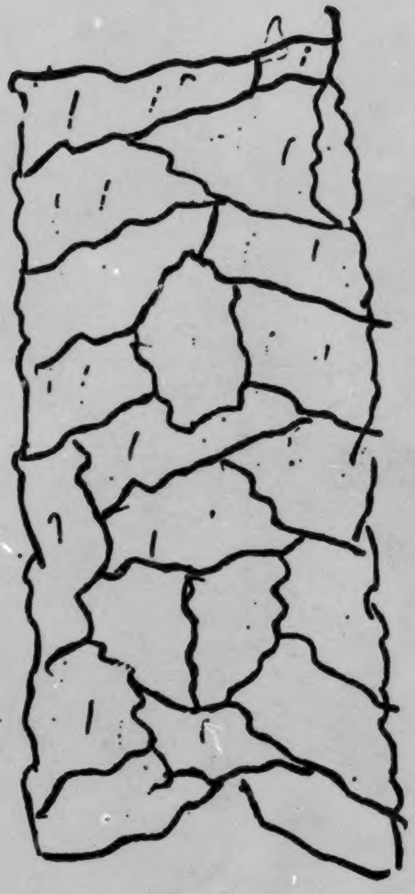
MAGNIFIED WOOL FIBERS



FINE



MEDIUM



COARSE

TM 1

AP-239-A

WOOL PROCESSING
UNIT XII

ASSIGNMENT SHEET #1—CALCULATE WOOL PRICES FOR CLEAN OR GREASE BASIS

Using the information provided, find the requested price. Show your work. When completed return to instructor for evaluation.

1. 12 pounds grease wool
   Yield is 42%
   Grease price is $.44 a pound
   Clean price____________

2. 8 pounds clean wool
   Shrinkage is 52%
   Clean price is $1.84 a pound
   Grease price____________

3. 11 pounds grease wool
   Shrinkage is 38%
   Grease price is $.89 a pound
   Clean price____________

WOOL PROCESSING
UNIT XII

ANSWERS TO ASSIGNMENT SHEET

Assignment Sheet #1

1. Pounds clean wool—5.04 pounds
   Total grease price—$5.28
   Clean price—$1.04 a pound

2. Pounds grease wool—15.38 pounds
   Total clean price—$14.72
   Grease price—$.96 a pound

3. Pounds clean wool—6.28 pounds
   Total grease price—$9.79
   Clean price—$1.55 a pound

WOOL PROCESSING
UNIT XII

TEST

1. Match the terms on the right to the correct definitions.

___ a. Sampling of bagged wool to determine the grade of wool in the bag

___ b. Grease and sweat salts found in unscoured wool

___ c. One fleece from a sheep or all the fleeces from a state or all the fleeces from a country

___ d. Natural protein fiber that is hydroscopic

___ e. Percentage of clean wool after scouring, including insoluable impurities

___ f. Medium wool breed that is the result of a cross between a fine wool breed and a long wool breed, especially adapted to the western range

___ g. Process of removing a fleece from a sheep

___ h. Percentage of impurities found in unscoured wool including insoluable impurities

___ i. Wool that has been sheared and placed in burlap bags for shipment

___ j. Refers to the fineness of wool that a particular breed of sheep will produce on the average

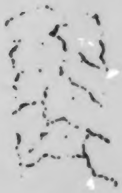
___ k. Refers to impurities found in unscoured wool, excluding insoluable matter

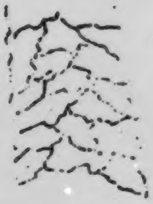
___ l. Wool that has undergone a chemical and mechanical cleaning process

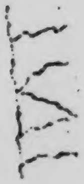
___ m. Wool that has been removed from a sheep

1. Grease wool
2. Wool breed
3. Coring
4. Yolk
5. Bagged
6. Fleece
7. Scoured
8. Crossbred wool breed
9. Shear
10. Yield
11. Clip
12. Shrink
13. Wool

2. Identify the types of wool fibers below.







a.________________ b.________________ c.________________

3. List three fine wool breeds of sheep.

a.

b.

c.

4. Select the medium wool breeds of sheep by placing an "X" in front of the correct breeds.

____a. American Merino

____b. Cheviot

____c. Cotswold

____d. Suffolk

____e. Dorset

____f. Columbia

____g. Southdown

____h. Hampshire

____i. Oxford

____j. Corriedale

5. Select the long wool breeds of sheep by placing an "X" by the long wool breeds.

____a. Cotswold

____b. Leicester

____c. Tunis

____d. Lincoln

____e. Montadale

____f. Romney

6. Select the crossbred wool breeds by placing an "X" by the correct breeds.

____a. Columbia

____b. Romney

____c. Cheviot

____d. Corriedale

____e. Rambouillet

____f. Targhee

7. List five characteristics of wool.

   a.

   b.

   c.

   d.

   e.

8. List two major uses of wool.

   a.

   b.

9. List the types of impurities in wool.

   a.

   b.

   c.

   d.

10. Apply the rule to compute prices of grease and clean wool.

    You have sold 15 lbs. of grease wool at 95¢ a pound with 35% shrinkage. What is the amount of your check? Show your work.

11. Select the factors affecting the quality of wool by placing an X in front of the correct factors.

    ____ a. Length

    ____ b. Color

    ____ c. Density

    ____ d. Diameter

    ____ e. Time of year

12. Describe the classes of apparel wool.

    a. Combing or staple

    b. French combing

    c. Clothing

13. Describe the difference between worsted and woolen fabric.

14. Arrange in order eleven steps involved in manufacturing processed wool by placing a 1 by the first step, 2 by the second, up to 11 in the last step.

____ a. Carding

____ b. Drying

____ c. Dyeing and finishing

____ d. Combing

____ e. Scouring

____ f. Dusting and opening

____ g. Blending, oiling and mixing

____ h. Carbonizing or bur picking

____ i. Spinning

____ j. Sorting

____ k. Weaving or knitting

15. Describe the grading systems below.

Blood system

WOOL PROCESSING
UNIT XII

ANSWERS TO TEST

1. a. 3
   b. 4
   c. 11
   d. 13
   e. 10
   f. 8
   g. 9
   h. 12
   i. 5
   j. 2
   k. 1
   l. 7
   m. 6
2. a. Medium
   b. Coarse
   c. Fine
3. Any three of the following:
   a. American Merino
   b. Debouillet
   c. Delaine Merino
   d. Rambouillet
4. b, d, e, g, h, i
5. a, b, d, f
6. a, c, f
7. Any of five of the following:
   a. Hydroscopic
   b. Generates heat in itself
   c. Superior insulator
   d. Lightweight
   e. Elastic
   f. Durable

g. Strong

h. Will not burn by itself

8. a. Carpet wool

b. Apparel wool

9. a. Natural (grease)

b. Aquired (animal, vegetable, and mineral matter)

c. Moisture (water, a hidden shrink factor)

d. Applied (paint brands)

10. 15 lbs. × .95 = $14.25

15 lbs. × .35 = 5.25 pounds of grease

15 lbs. − 5.25 lbs. grease = $9.25 pounds clean wool

11. a, c, d

12. Description should include:

a. Combing or staple

1) Longest fiber

2) Make worsted clothes

b. French combing

1) Medium length fibers

2) Worsted cloth using a special process

c. Clothing

1) Shortest fibers

2) Woolen cloth

13. Description should include:

a. Worsted

1) Long fibers

2) Have been combed and carded

b. Woolens

  1) Short fibers

  2) Carded, not combed

14. a. 7

  b. 4

  c. 11

  d. 8

  e. 3

  f. 2

  g. 6

  h. 5

  i. 9

  j. 1

  k. 10

15. Description should include:

Blood System

a. Divides wool into classes from fine to coarse

b. Based on the amount of Merino blood in the sheep

c. Correlated to the diameter of the wool

DAIRY PROCESSING
UNIT XIII

UNIT OBJECTIVE

After completion of this unit, the student should be able to draw an outline showing the three stages of the market channels, the difference between Grade A and Grade B milk, describe five methods of pricing or paying for fluid milk and list uses of fluid milk. This knowledge will be evidenced by scoring eighty-five percent in the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. match terms associated with dairy processing to the correct definitions.
2. List the market importance of milk and dairy products.
3. Select the true statements concerning milk products.
4. List five uses of milk.
5. List the three market channels for milk.
6. Select the true statements concerning seasonal price trends of milk products.
7. Describe three types of milk price regulations.
8. Describe three methods of pricing fluid milk.
9. Describe four uses of milk.
10. Describe imports and exports of dairy products.
11. Describe the outlook for dairy products.

DAIRY PROCESSING
UNIT XIII

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objectives.

  B. Provide students with information and assignment sheets.

  C. Discuss unit and specific objectives.

  D. Discuss information and assignment sheets.

  E. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheet.

  C. Complete assignment sheet and turn into instructor.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Assignment sheet #1—Develop the Line of Milk Processing

  D. Test

  E. Answers to test

II. References:

  A. Ensminger, M.E. *Animal Science.* Danville, Illinois: The Interstate Printers and Publishers, 1977.

  B. Bundy, C.E.; Diggins, R.V.; and Christensen, V.W. *Dairy Production*, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1979.

DAIRY PROCESSING
UNIT XIII
INFORMATION SHEET

I. Terms and definitions

- A. Total marketing bill—Cost of transporting, processing, and distributing dairy products
- B. Fluid milk—Milk consumed in liquid form
- C. Federal milk marketing order—Legal instrument designed to stabilize the marketing of fluid milk
- D. Cooperative—One or more producers organized together to bargain for better prices

II. Market importance of milk and dairy products

- A. 14% of food dollar
- B. 9.9% of farm cash income
- C. Farm value of dairy products is $8.3 billion

III. Farm production and handling of milk

- A. Milk made into
    - 1. 17.2% butter
    - 2. 10% frozen dairy products
    - 3. 23.9% cheese
    - 4. 44.6% milk
- B. Large margin between grade A and lower grades of milk

IV. Uses of milk

- A. Pasteurized milk
- B. Homogenized milk
- C. Fortified milk
- D. Skim milk
- E. Flavored milk

INFORMATION SHEET

V. Market channels for milk

   A. Transportation from farm to plant

   B. Processing and packaging

   C. Distribution to consumer

VI. Seasonal price trends

   A. Heavy production in spring because 40% cows calve in first four months of the year

   B. Low prices in April, May, June

   C. High prices in October, November, December

VII. Milk price regulations

   A. Federal

      1. Stabilize marketing of fluid milk

      2. Not concerned with sanitary regulations

      3. Assist in negotiating with distributors for sale of milk

      4. Farmers' price controlled

      5. Support programs directly affect prices

      6. Grade A price influenced by prices under federal orders or state control

   B. State

      1. 1972, 37 states set minimum farm wholesale and retail prices

      2. State milk controls will declince in importance

   C. Cooperative

      1. Bargaining co-op—Makes business arrangement

      2. Association co-op—Processes, distributes, and assembles milk

      3. Cooperative—Handles 70% of total milk

VIII. Methods of pricing or paying for fluid milk

   A. Flat price

      1. Uniform price

INFORMATION SHEETS

2. Same price regardless of quality and use

3. Used up to World War I

B. Classification plan

1. Class I

a. 35% to 100% higher price than Class II

b. Whole milk and milk for creamed drinks

2. Class II—Use in manufactured products

C. Blend price

1. Price weight by volume of milk in each class

2. Quoted at specific point for a specific test

D. Quality grade plan

1. Grade A higher quality for drinking purpose; increased production

2. Grade B not acceptable for fluid milk

E. Base surplus plan

1. Encourage uniform supply

2. Compensate high fall production

3. Base established during lowest production month

4. Base taken off three to six months

5. Base average amount of milk delivered during base period

F. Butterfat test price plan

1. Butter fat test effects price

2. 3.5% is basis of pricing

3. 0.19 is deducted per point above or below 3.5%

G. Solids not fat price plan

1. Emphasis on protein content

2. Future system

INFORMATION SHEETS

H. Gallon or quart plan

    1. Occasionally used

    2. Bought by gallon or quarts

        a. 2.15 lbs = quart

        b. 8.6 lbs = gallon

I. Special Milks

    1. Certified milk—Produced under special sanitary conditions

    2. Golden Guernsey milk—Produced by owners of purebred Guernsey cows

    3. All Jersey milk—Produced by owners of purebred Jersey herds

IX. Uses of milk

A. Cream

    1. Concentrating fat portion of milk

    2. Whipping cream, 40% fat

    3. Half and half, 12% fat

B. Ice cream—99% of all frozen deserts are made from vegetable fat base

C. Butter

    1. Made from cream

    2. 80% milk fat

    3. Milk not used for butter until all other demands have been met

    4. Butter manufacturing sign of increases and decreases of milk industry

D. Nonfat dry milk

    1. Dried whole milk

    2. Dried butter milk

    3. Dried whey

    4. Nonfat dried milk

INFORMATION SHEET

E. Cheese
    1. Expose milk to specific bacteria (fermentation)
    2. Treat with enzymes
    3. Cheddar, Colby—62% of nation's output
    4. Cottage cheese most important variety cheese
    5. Leading states: Wisconsin, Nebraska, Minnesota

X. Imports and exports
  A. Export 0.5% of total milk
  B. Imports exceed exports
  C. Exports influenced by surplus and demand of foreign countries

XI. Outlook for dairy products
  A. Per capita consumption stable stage
  B. Population income, consumer preference and new products influence demand
  C. Low fat products increase
  D. Nondairy substitutes increased use
  E. Dairy herd decrease in number
  F. Fluid milk increases

DAIRY PROCESSING
UNIT XIII

ASSIGNMENT SHEET #1— DEVELOP THE LINE OF MILK PROCESSING

Develop the line of processing that Mr. Kincanon's milk will follow starting from the farm to the Pigly Wigly store.

DAIRY PROCESSING
UNIT XIII
TEST

1. Match the terms on the right with the correct definitions.

____ a.	Milk consumed in liquid form	1.	Total marketing bill
____ b.	Legal instrument designed to stablized the marketing of fluid milk	2.	Fluid milk
____ c.	One or more producers organized together to bargain for better prices	3.	Federal Milk Marketing Order
____ d.	Cost of transporting processing, and distributing dairy products	4.	Cooperative

2. List the market importance of milk and dairy products.

a.

b.

c.

3. Select the true statement concerning milk production by placing an "X" by the true statements.

____ a. There is a large margin between grade A and lower grades of milk

____ b. 23.9% of the milk produced is made into cheese

____ c. Most of the milk produced is sold as fluid milk, 44.6%

____ d. 30% of the milk produced is made into butter

____ e. Smallest portion of milk is made into frozen dairy products, 10%

4. List five uses of milk.

a.

b.

c.

d.

e.

5. List three market channels for milk.

   a.

   b.

   c.

6. Select the true statements concerning seasonal price trends of milk products by placing an "X" by the true statements.

   ____ a. Heavy production in spring because 40% cows calve in first four months of the year

   ____ b. Low prices in October, November, and December

   ____ c. Low production in the spring

   ____ d. Low prices in April, May, and June

7. Describe the following three milk price regulations.

   a. Federal

   b. State

   c. Cooperative

8. Describe the following three methods of pricing fluid milk.

   a. Flat price

   b. Butter test price plan

   c. Special milks

9. Describe the uses of milk listed below.
    a. Cream
    b. Ice Cream
    c. Butter
    d. Cheese

10. Describe imports and exports of dairy products.

11. Describe the outlook of the dairy industry.

DAIRY PROCESSING
UNIT XIII
ANSWERS TO TEST

1. a. 2
   b. 3
   c. 4
   d. 1
2. a. 14% of food dollar
   b. 9.9% of farm cash income
   c. Farm value of dairy products is $8.3 billion
3. a,b,c,e
4. a. Pasteurized milk
   b. Homogenized milk
   c. Fortified milk
   d. Skim milk
   e. Flavored milk
5. a. Transportation from farm to plant
   b. Processing and packaging
   c. Distribution to consumer

6. a,d
7. Description should include:
   a. Federal
      1) Stablize marketing of fluid milk
      2) Not concerned with sanitary regulations
      3) Assist in negotiating with distributors for sale of milk
      4) Farmers price controlled

    5) Support programs directly affect prices
    6) Grade A price influenced by prices under federal orders or state control

- b. State
    - 1) 1972, 37 states set minumum farm wholesale and retail prices
    - 2) State milk controls will decline in importance
- c. Cooperative
    - 1) Bargaining co-op—Makes business arrangements
    - 2) Association co-op—Processes, distributes, and assembles milk
    - 3) Cooperative—Handles 70% of total milk

8. Description should include:
    - a. Flat price
        - 1) Uniform price
        - 2) Same price regardless of quality and use
        - 3) Used up to World War I
    - b. Butter fat test price plan
        - 1) Butterfat test effects price
        - 2) 3.5% is basis of pricing
        - 3) 0.19% is deducted per point above or below 3.5%
    - c. Special milks
        - 1) Certified milk—Produced under special sanitary conditions
        - 2) Golden Guernsey milk—Produced by owners of purebred Guernsey cows
        - 3) All Jersey milk—Produced by owners of purebred Jersey herds

9. Description should include:
    - a. Cream
        - 1) Concentrating fat portion of milk

2) Whipping cream 40% fat

3) Half and half, 12% fat

b. Ice Cream—99% of all frozen desserts

c. Butter

1) Made from cream

2) 80% milk fat

3) Milk not used for butter until all other demands have been met

4) Butter manufacturing sign of increases and decreases of milk industry

d. Cheese

1) Expose milk to specific bacteria, fermentation

2) Treat with enzymes

3) Chedder, Colby—62% of nation's output

4) Cottage cheese most important variety cheese

5) Leading states: Wisconsin, Nebraska, Minnesota

10. Description should include:

a. Exports 0.5% of total milk

b. Imports exceed exports

c. Exports influenced by surplus and demand of foreign countries

11. Description should include:

a. Per capita consumption stable stage

b. Population income, consumer preference and new products influence demand

c. Low fat products increase

d. Nondairy substitutes increased use

e. Dairy herd decrease in number

f. Fluid milk increases

COMPANION ANIMAL PHYSIOLOGY
UNIT I

UNIT OBJECTIVE

After completion of this unit, the student should be able to discuss companion animal physiology. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with companion animal physiology to the correct definitions.
2. List four types of body tissue.
3. List four types of cartilage.
4. List three kinds of muscles.
5. List five functions of blood circulation.
6. List the six senses of animals.
7. List seven major hormone producing organs or glands.
8. List four functions of the lympathe systems.
9. Describe two types of bone tissue.
10. Describe three types of body muscles.

COMPANION ANIMAL PHYSIOLOGY
UNIT I

SUGGESTED ACTIVITIES

I. instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and assignment sheets.

   C. Make transparency.

   D. Discuss unit and specific objectives.

   E. Discuss information sheets.

   F. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheet.

   C. Complete assignment sheets and turn in to instructor for evaluation.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Transparency master: TM #1—Points and Anatomical Directions of the Dog

   D. Assignment sheet #1—Points and Anatomical Directions of the Dog

   E. Answers to assignment sheet

   F. Test

   G. Answers to test

II. References:

A. Carliie, Robert B. *Veterinarian Assistant Individual Study Guide*. Columbia, Missouri: Instructional Materials Laboratory, 1975.

B. Whitney, Leon, D.V.M., *The Complete Book of Cat Care*. Garden City, New York: Doubleday and Company, Inc., 1953.

C. Whitney, Leon, D.V.M., *The Complete Book of Dog Care:* Garden City, New York: Doubleday and Company, Inc., 1953.

COMPANION ANIMAL PHYSIOLOGY
UNIT I

INFORMATION SHEET

I. Terms and definition (Transparency 1)

A. Physiology—Study of the functions of systems of a body

B. Mitosis—Cell division

C. Oxidation—Basic energy source of animals

D. Superficial—Close to the surface of the body

E. Deep—Not close to the surface of the body

F. Midline—Position near the middle

G. Ventral—If animal is standing, the surface of the head, trunk and tail that is nearest the ground

H. Dorsal—If animal is standing, the surface of the head, trunk, and tail that is facing up

I. Caudal—Part that is nearer to the tail end of the animal

J. Palmer—Lower regions of the forelimb

K. Planter—Lower region of the hind limbs

L. Cranial—Part that is nearer to the front of the animal

M. Oral—Near the mouth

N. Rostal—Toward the nose

O. Anterior—Situated at or directed toward the front

P. Posterior—Situated at or directed toward the back

Q. Distal—Term used for the limb measures away from the trunk

R. Proximal—Term used for the limbs close to the trunk

S. Tissue—Cells, intercellular materials, and fluids which make up the material of which an animal is made

T. Organ—Structure in which one tissue predominates and where some special function is segregated

INFORMATION SHEET

U. System—Collection of tissue organs, parts, and structures related by position or function

II. Types of body tissue

A. Epithelial

B. Muscular

C. Connective

D. Nervous

III. Cartilage types

A. Hyaline

B. Laryngeal

C. Fibro

D. Elasto

IV. Kinds of muscle

A. Striated

B. Unstriated

C. Cardiac

V. Functions of blood circulation

A. Transportation of oxygen

B. Transportation of carbon dioxide

C. Transportation of excretory materials

D. Transportation of digested food

E. Distribution of heat and temperature control

F. Blood coagulation

G. Body defense and repair

INFORMATION SHEET

VI. Senses of animals

- A. Sight
- B. Smell
- C. Taste
- D. Hearing
- E. Balance
- F. Touch

VII. Major hormone producing organs or glands

- A. Pituitary
- B. Thyroid
- C. Parathyroid
- D. Thymus
- E. Adrenal
- F. Islet of Langerhans
- G. Gesnals

VIII. Functions of the lympathe system

- A. Return fluids from the tissue back into circulation
- B. Manufacture lymphochytes
- C. Transport absorbed fats from the wall of the intestine
- D. Provide a defense against invasion of germs

IX. Types of bone tissue

- A. Compact tissue—Bone is hard and dense
- B. Cancelous bone—Many small cavaties filled with marrow

X. Body muscles of companion animals

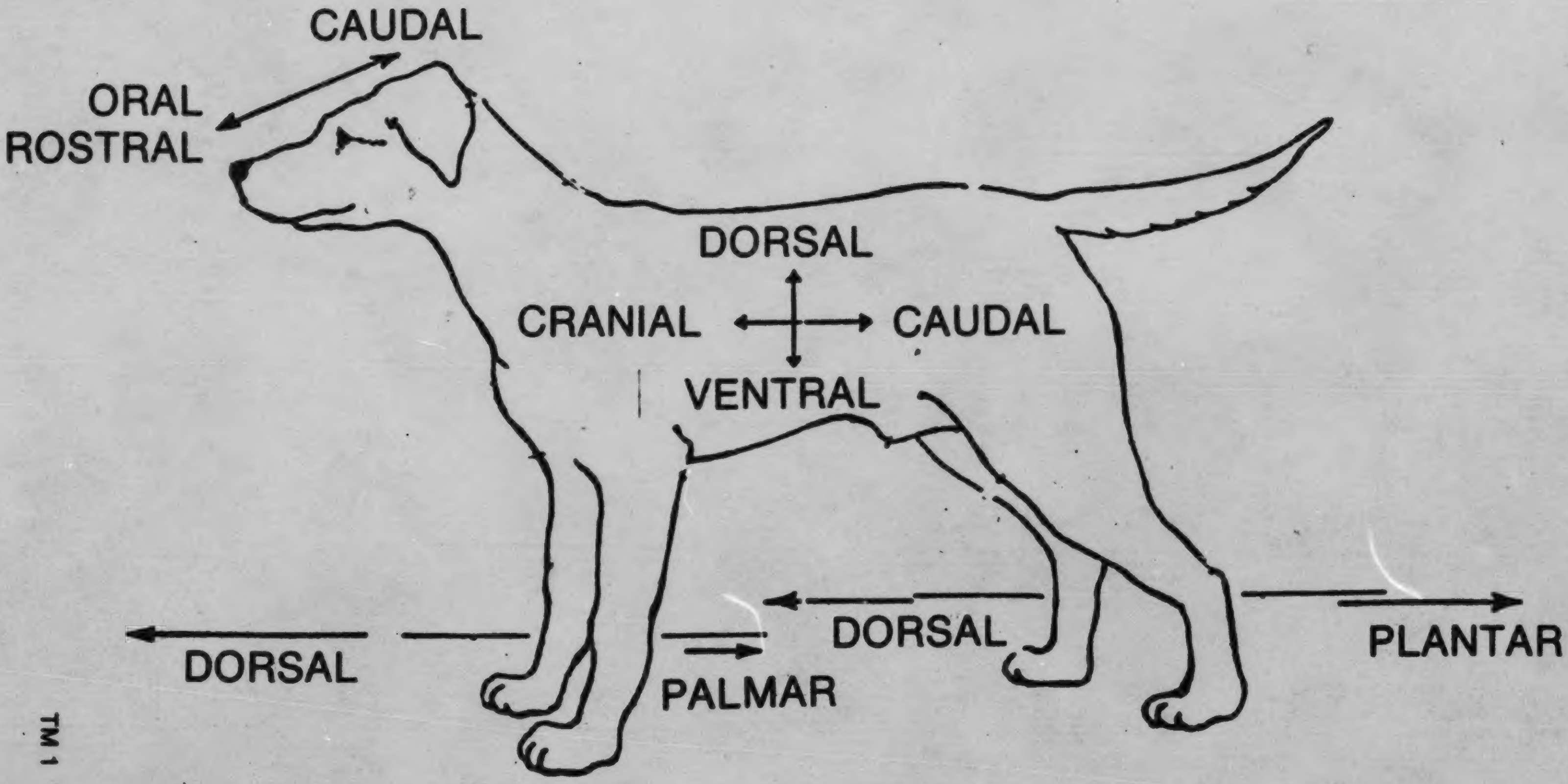
- A. Voluntary—Muscles in which animal has control over
  Example: Legs

B. Involuntary—Muscles which animal does not have any control over

Example: Blinking

C. Cardiac—Restricted to the heart, rhythmic contraction

POINTS AND ANATOMICAL DIRECTIONS OF THE DOG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TM 1

CA-9-B

COMPANION ANIMAL PHYSIOLOGY
UNIT I

ASSIGNMENT SHEET #1—POINTS AND ANATOMICAL DIRECTIONS OF THE DOG

Using the illustration below, identify the parts of the dog. Study transparency 1 and then try to complete the drawing from memory.

a ____________

b ____________

c ____________

d ____________

e ____________

f ____________

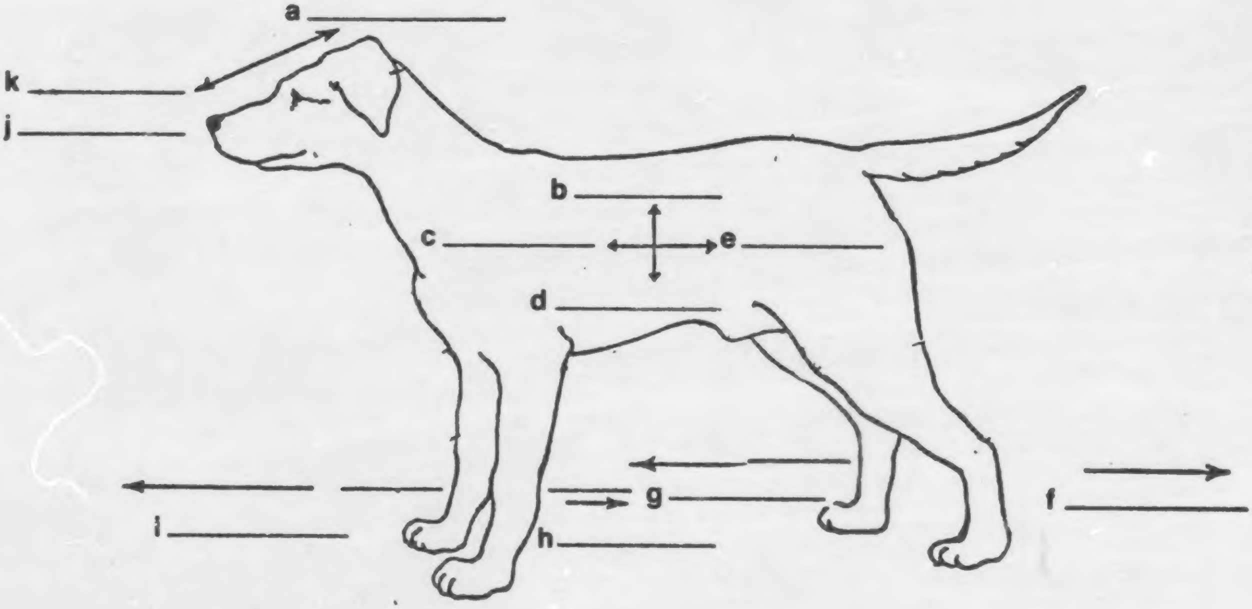
g ____________

h ____________

i ____________

j ____________

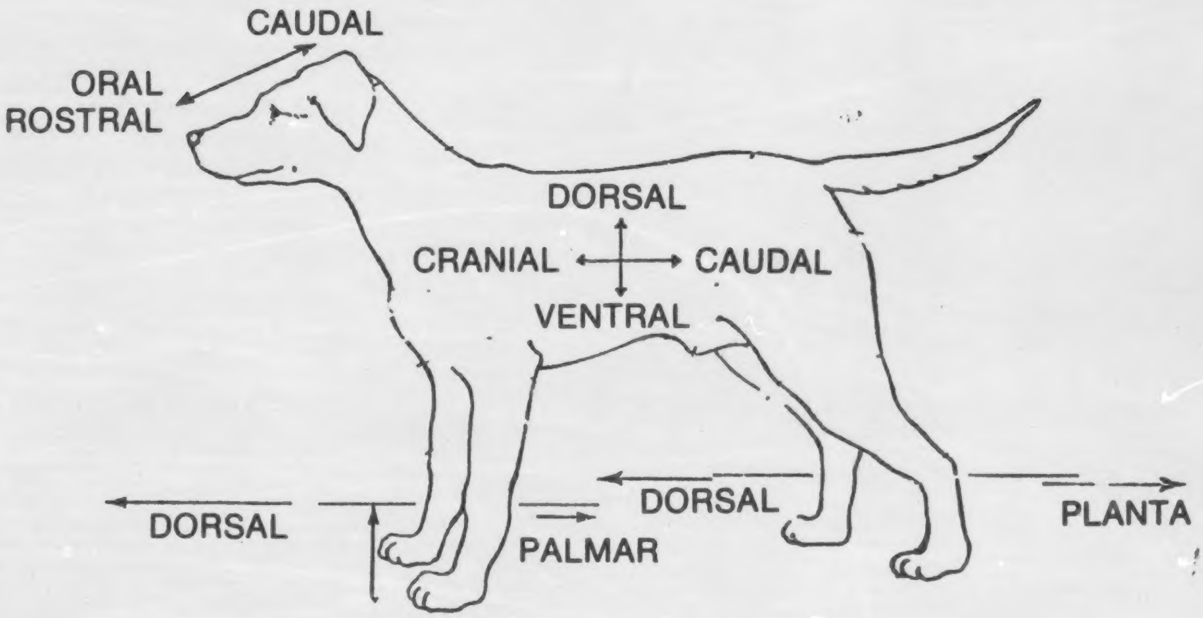
k ____________



COMPANION ANIMAL PHYSIOLOGY
UNIT I

ANSWERS TO ASSIGNMENT SHEET

Assignment Sheet #1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VENTRAL
DORSAL
PALMAR
DORSAL
PLANTA

CA-15-B

COMPANION ANIMAL PHYSIOLOGY
UNIT I

TEST

1. Match terms on the right to the correct definitions.

___ a. Part that is nearer to the front of the animal

___ b. Position near the middle

___ c. Study of the functions of the systems of a body

___ d. Near the mouth

___ e. Collection of tissue organs, parts, and structures related by position or function

___ f. If animal is standing, the surface of the head, trunk, and tail that is facing up

___ g. Situated at or directed toward the back

___ h. Term used for the limbs close to the trunk

___ i. Structure in which one tissue predominates and where some special function is segregated

___ j. Close to the surface of the body

___ k. Lower region of the forelimb

___ l. Part that is nearer to the tail end of the animal

___ m. If animal is standing, the surface of the head, trunk, and tail that is nearest the ground

___ n. Cells, intercellular material, and fluids which make up the material of which an animal is made

___ o. Lower region of the hind limbs

___ p. Cell division

1. **Physiology**
2. **Superficial**
3. **Midline**
4. **Ventral**
5. **Dorsal**
6. **Caudal**
7. **Palmer**
8. **Planter**
9. **Cranial**
10. **Oral**
11. **Posterior**
12. **Proximal**
13. **Tissue**
14. **Organ**
15. **System**
16. **Mitosis**
17. **Oxidation**
18. **Deep**
19. **Rostal**
20. **Anterior**
21. **Distal**

____ q. Term used for the limbs measures away from the trunk

____ r. Situated at or directed toward the front

____ s. Toward the nose

____ t. Basic energy source of animals

____ u. Not close to the surface of the body

2. List four types of body tissue.

a.
c.
b.
d.

3. List four types of cartilage.

a.
c.
b.
d.

4. List three kinds of muscles.

a.
b.
c.

5. List five functions of blood circulation.

a.
d.
b.
e.
c.

6. List the six senses of animals.

a.
d.
b.
e.
c.
f.

7. List seven major hormone producing organs or glands.

a.

b.

c.

d.

e.

f.

g.

8. List four functions of the lympathe system.

a.

b.

c.

d.

9. Describe the following two types of bone tissue.

a. Compact tissue

b. Cancelous bone

10. Describe three types of body muscles.

a. Voluntary

b. Involuntary

c. Cardiac

COMPANION ANIMAL PHYSIOLOGY
UNIT I
ANSWERS TO TEST

1. a. 9
   b. 3
   c. 1
   d. 10
   e. 15
   f. 5
   g. 11
   h. 12
   i. 14
   j. 2
   k. 7
   l. 6
   m. 4
   n. 13
   o. 8
   p. 16
   q. 21
   r. 20
   s. 19
   t. 17
   u. 18

2. a. Epithelial
   b. Muscular
   c. Connective
   d. Nervous

3. a. Hyaline
   b. Laryngeal
   c. Fibro
   d. Elasto

4. a. Striated
   b. Unstriated
   c. Cardiac

5. Any five of the following:
   a. Transportation of oxygen
   b. Transportation of carbon dioxide
   c. Transportation of excretory materials
   d. Transportation of digested food
   e. Distribution of heat and temperature control
   f. Blood coagulation
   g. Body defense and repair

6. a. Sight
   b. Smell
   c. Taste
   d. Hearing
   e. Balance
   f. Touch

7. a. Pituitary
   b. Thyroid
   c. Parathyroid
   d. Thymus
   e. Ardrenal
   f. Eslet of Langerhans
   g. Gesnals

8. a. Return fluids from the tissue back into circulation
   b. Manufacture lymphocytes
   c. Transport absorbed fats from the wall of the intestine
   d. Provide a defense against invasion of germs

9. Descriptions should include:
   a. Compact tissue—Bone is hard and dense
   b. Cancelous bone—Many small cavities filled with marrow

10. Description should include:
    a. Voluntary—Muscles which animal has control over
    b. Involuntary—Muscles which animal does not have any control over
    c. Cardiac—Restricted to the heart, rhythmic contractions

COMPANION ANIMAL ANATOMY
UNIT II

UNIT OBJECTIVE

Upon completion of this unit, the student should be able to identify the parts of companion animals, list factors of the animals' anatomy, and describe the difference in skeletal structures. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match twelve parts of the horse to the correct names.
2. Match three parts of the horse's hoof to the correct name.
3. Match twelve parts of the cat to the correct names.
4. Match eleven parts of the dog to the correct names.
5. Identify four types of dog teeth.
6. List three factors about cats' eyes.
7. Describe the importance of cat whiskers.
8. Describe the skeletal variation of dogs.
9. Describe how a cat contracts and retracts its claws.

COMPANION ANIMAL ANATOMY
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide student with objective sheet.

   B. Provide student with information sheet.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Discuss information sheets.

   F. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheets.

   C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Transparencies masters

      1. TM 1—Points of the Horse

      2. TM 2—Parts of the Horse's Hoof

      3. TM 3—Parts of the Cat

      4. TM 4—Parts of a Dog

      5. TM 5—Retraction of Claws and Types of Dog Teeth

   D. Test

   E. Answers to test

II. References:

A. Carlile, Robert B., *Veterinarian Assistant Individual Study Guide*. Columbia, Missouri: Instructional Materials Laboratory, 1975.

B. Whitney, Leon, D.V.M. *The Complete Book of Dog Care*. Garden City, New York: Doubleday and Company, Inc., 1953.

C. Whitney, Leon, D.V.M. *The Complete Book of Cat Care*. Garden City, New York: Doubleday and Company, Inc., 1953.

COMPANION ANIMAL ANATOMY
UNIT II

INFORMATION SHEET

I. Parts of the Horse (Transparency 1)

- A. Forelock
- B. Muzzle
- C. Windpipe
- D. Elbow
- E. Forearm
- F. Knee
- G. Cannon
- H. Fetlockjoint
- I. Hoof
- J. Pastern
- K. Chestnut
- L. Flank
- M. Stifle
- N. Shannon
- O. Hock
- P. Gaskin
- Q. Tail
- R. Thigh
- S. Dock
- T. Croup
- U. Loins

INFORMATION SHEET

V. Back

W. Withers

X. Shoulder

Y. Crest

Z. Mane

AA. Poll

II. Parts of horses' hoof (Transparency 2)

A. Frog

B. Sole

C. Wall

III. Parts of the cat (Transparency 3)

A. Occiput

B. Forehead

C. Shoulder

D. Elbow

E. Carpus

F. Metacarpus

G. Toes

H. Metatarsus

I. Hock

J. Stifle

K. Tail

L. Rump

M. Hips

N. Back

O. Withers

P. Nape

IV. Parts of a dog (Transparency 4)

A. Stop
B. Muzzle
C. Jaws
D. Shoulder
E. Prosternum
F. Forechest
G. Elbow
H. Pastern
I. Dewclaw
J. Ribs
K. Flank
L. Feet
M. Metatarsus
N. Pastern
O. Hock
P. Lower thigh
Q. Stifle
R. Upper thigh
S. Tail
T. Croup
U. Loin
V. Withers
W. Occiput

INFORMATION SHEET

V. Types of teeth (Transparency 5)
   A. Incisors (12 of them)
   B. Canines (4 of them)
   C. Premolars (16 of them)
   D. Molars (10 of them)

VI. Cat's eyes
   A. Adapted to see at night
   B. Night, pupil open
   C. Third eyelid slides diagonally

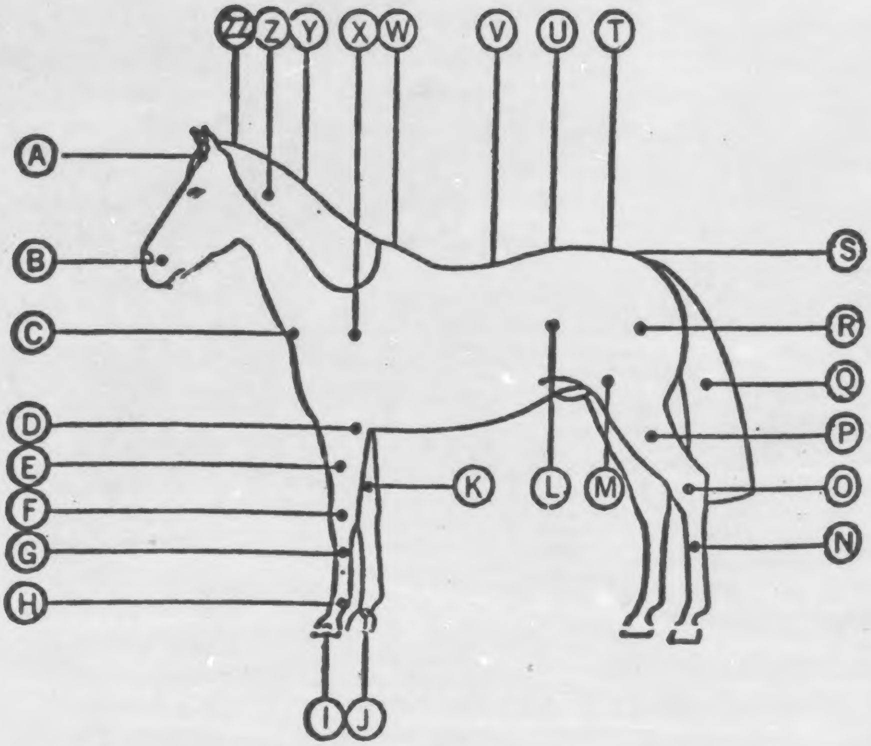
VII. Whiskers
   A. Touch organ
   B. Never cut
   C. Identify wind direction
   D. Used to guage openings

VIII. Skeletal variations of dogs
   A. Skulls vary with length of nasal bone
   B. Size and shape of bones vary

IX. Retraction of claws (Transparency 5)
   A. Ligment relaxed
   B. Muscle pulls claw up
   C. Ligment tightened
   D. Claw pulled down

CA-29-B

POINTS OF THE HORSE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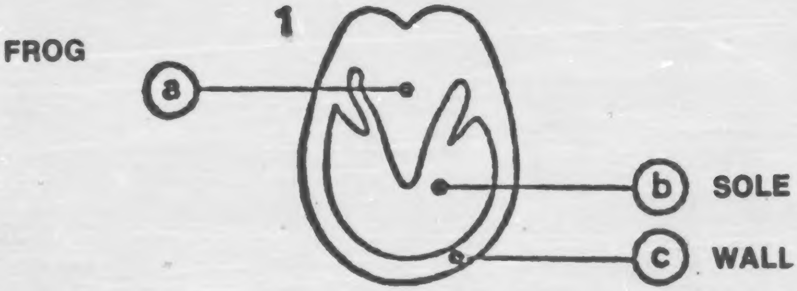
A. Forelock
B. Muzzle
C. Windpipe
D. Elbow
E. Forearm
F. Knee
G. Cannon
H. Fetlockjoint
I. Hoof
J. Pastern
K. Chestnut
L. Flank
M. Stifle
N. Shannon
O. Hock
P. Gaskin
Q. Tail
R. Thigh
S. Dock
T. Croup
U. Loins
V. Back
W. Withers
X. Shoulder
Y. Crest
Z. Mane
AA. Poll

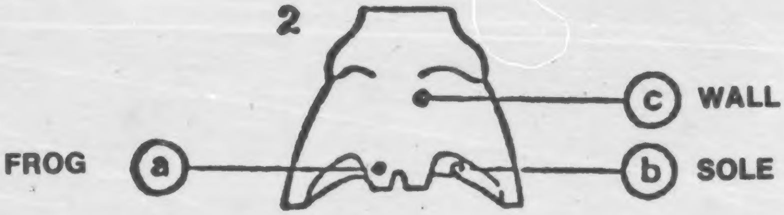
TM 1

PARTS OF HORSES' HOOF

1


FROG
a
b
SOLE
c
WALL

2


c
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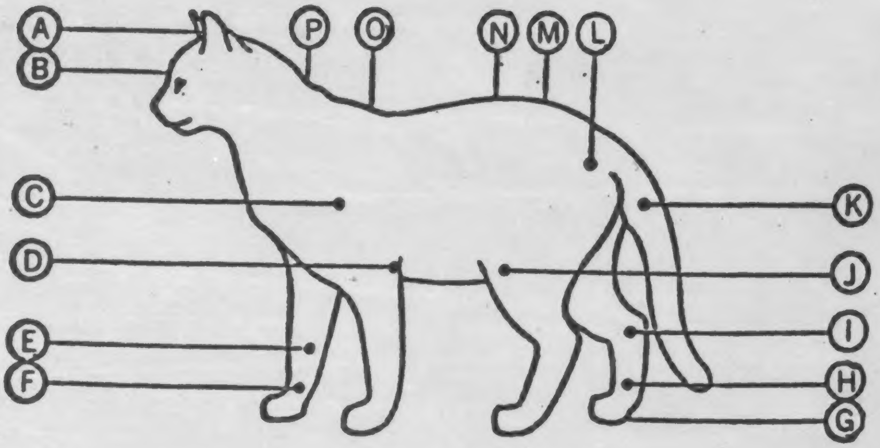
PARTS OF THE CAT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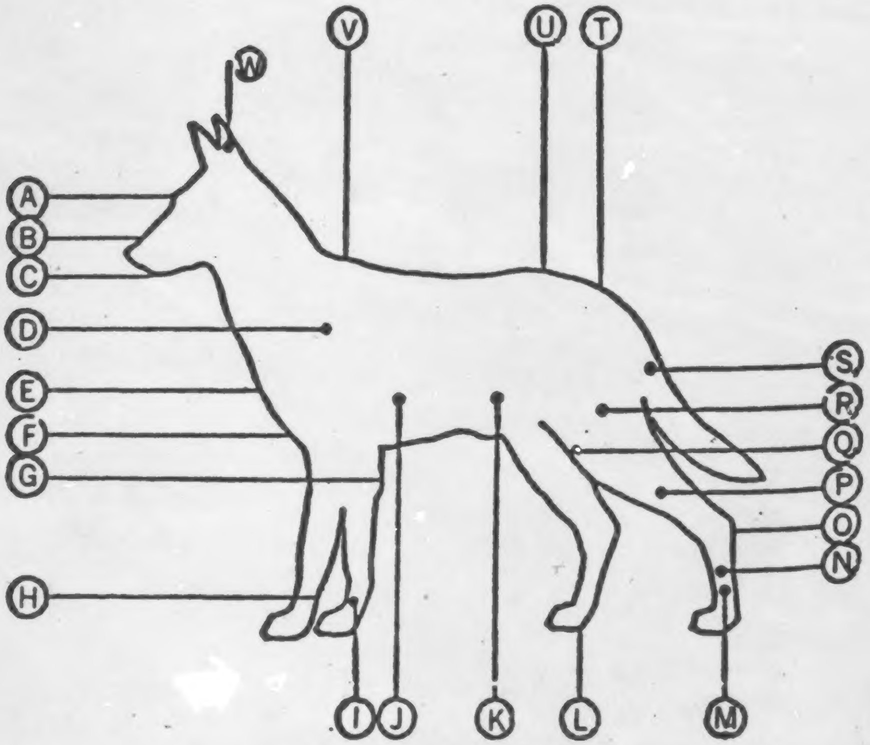
A. Occiput
B. Forehead
C. Shoulder
D. Elbow
E. Carpus
F. Metacarpus
G. Toes
H. Metatarsus
I. Hock
J. Stifle
K. Tail
L. Rump
M. Hips
N. Back
O. Withers
P. Nape

TM 3

PARTS OF THE DOG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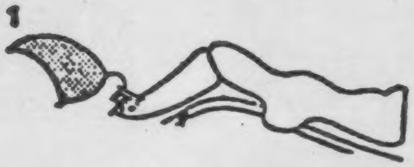
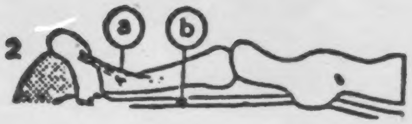
A. Stop	M. Metatarsus
B. Muzzle	N. Pastern
C. Jaws	O. Hock
D. Shoulder	P. Lower thigh
E. Prosternum	Q. Stifle
F. Forechest	R. Upper thigh
G. Elbow	S. Tail
H. Pastern	T. Croup
I. Dewclaw	U. Loin
J. Ribs	V. Withers
K. Flank	W. Occiput
L. Feet	

RETRACTION OF CLAWS

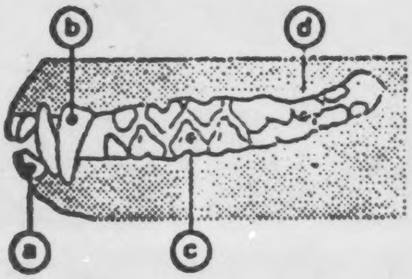
A. Ligment relaxed, 1.A.
B. Muscle pulls claw up, 1.B.
C. Ligment tightened, 2.B.
D. Claw pulled down, 2.A.





TYPES OF TEETH (Dog)

a) Incisors
b) Canines
c) Premolars
d) Molars



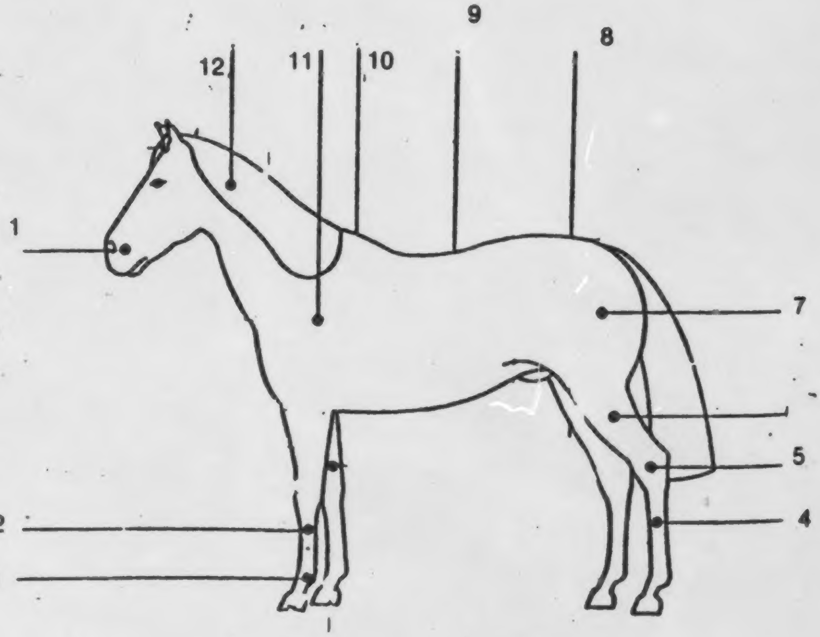
TM 5

COMPANION ANIMAL ANATOMY
UNIT II

TEST

1. Match the correct anatomy on the right to the correct name.

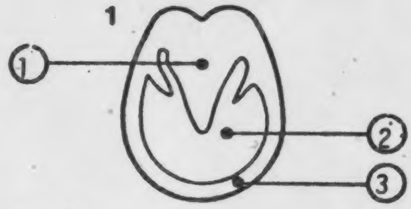
____ a. Muzzle
____ b. Cannon
____ c. Mane
____ d. Back
____ e. Shoulder
____ f. Croup
____ g. Fetlock joint
____ h. Hock
____ i. Thigh
____ j. Gaskin
____ k. Shannon
____ l. Withers



2. Match the correct anatomy on the right to the correct name.

____ a. Frog
____ b. Wall
____ c. Sole

1



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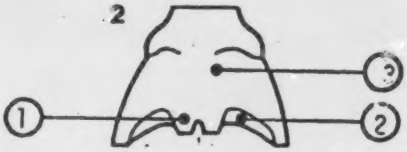


3. Match the cat anatomy on the right to the correct name.

____ a. Stifle

____ b. Shoulder

c. Hips

d. Metacarpus

e. Toes

____ f. Metatarsus

____ g. Forehead

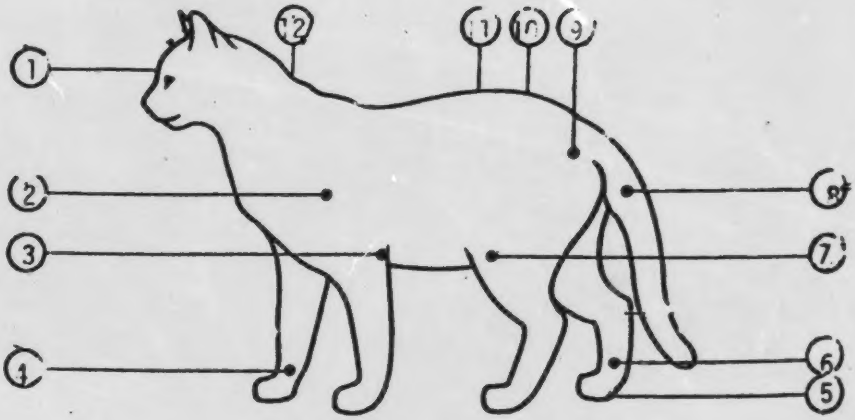
____ h. Tail

____ i. Nape

____ j. Elbow

____ k. Back

____ l. Rump



4. Match the dog anatomy on the right to the correct name.

____ a. Withers

____ b. Jaws

____ c. Loin

____ d. Elbow

____ e. Croup

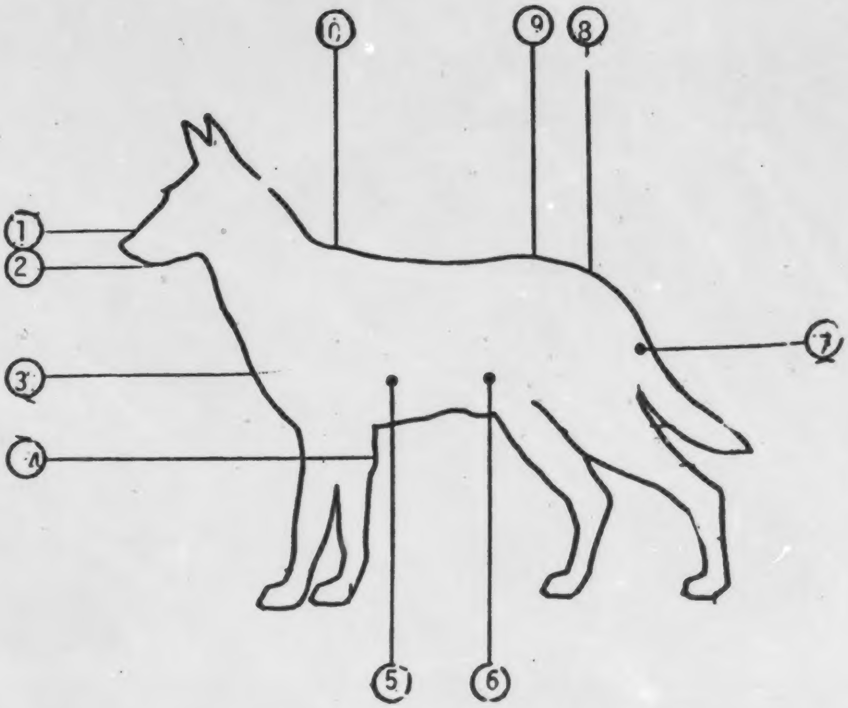
____ f. Flank

g. Tail

____ h. Ribs

____ i. Forechest

____ j. Muzzle



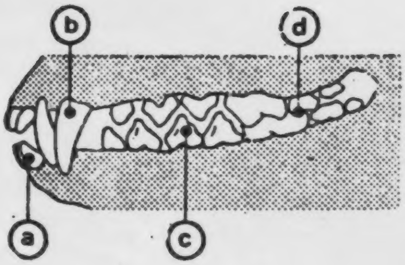
5. Identify the types of teeth.

   a. ______________________________

   b. ______________________________

   c. ______________________________

   d. ______________________________



6. List three factors about cat eyes.

   a.

   b.

   c.

7. Describe the importance of cats' whiskers.

8. Describe the skeletal variations of dogs.

9. Describe how a cat contracts and retracts its claws.

CA-43-B

COMPANION ANIMAL ANATOMY
UNIT II
ANSWERS TO TEST

1. a. 1
   b. 2
   c. 12
   d. 9
   e. 11
   f. 8
   g. 3
   h. 5
   i. 7
   j. 6
   k. 4
   l. 10

2. a. 1
   b. 3
   c. 2

3. a. 7
   b. 2
   c. 10
   d. 4
   e. 5
   f. 6
   g. 1
   h. 8
   i. 12
   j. 3
   k. 11
   l. 9

44-B

4. a. 10
   b. 2
   c. 9
   d. 4
   e. 8
   f. 6
   g. 7
   h. 5
   i. 3
   j. 2

5. a. Incisors
   b. Canines
   c. Premolars
   d. Molars

6. a. Adapted to see at night
   b. Night pupil open
   c. Third eyelid slides diagonally

7. Decription should include:
   a. Touch organ
   b. Never cut
   c. Identify wind direction
   d. Used to guage openings

8. Description should include:
   a. Skulls vary with length of nasal bone
   b. Size and shape of bones vary

9. Description should include:
   a. Ligment relaxed
   b. Muscle pulls claw up
   c. Ligament tightened
   d. Claw pulled down

BREEDS OF COMPANION ANIMALS
UNIT III

UNIT OBJECTIVE

After completion of this unit, the student should be able to describe the various breeds of companion animals according to origin and characteristics. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with breeds of companion animals to the correct definitions.
2. Describe two major breeds of long haired cats including origin and characteristics.
3. Describe two major breeds of short haired cats including origin and characteristics.
4. Describe three major breeds of sporting dogs including origin and characteristics.
5. Describe two major breeds of hounds including origin and characteristics.
6. Describe two major breeds of working dogs including origin and characteristics.
7. Describe two major breeds of terrior dogs including origin and characteristics.
8. Describe one major breed of toy dogs including origin and characteristics.
9. Describe one major breed of nonsporting dogs including origin and characteristics.
10. Describe three major breeds of saddle horses (lighthorses).

BREEDS OF COMPANION ANIMALS
UNIT III

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide student with objective sheets.

  B. Provide student with information and assignment sheets.

  C. Make transparency.

  D. Discuss unit and specific objectives.

  E. Discuss information sheet and assignment sheets.

  F. Give test.

II. Students:

  A. Read objectives.

  B. Study information sheet and take notes.

  C. Write to breed association for information and present it to class.

  D. Make a bulletin board on breeds of companion animals.

  E. Complete assignment sheets and turn in to instructor.

  F. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Transparency master: TM 1—Breeds of Longhair Cats

  D. Assignment sheets #1—A breed notebook

  E. Test

  F. Answers to test

II. References:

A. Livessey, Dennis W., *Exploring Small Animal Care* New Brunswick, New Jersey: Vocational Technical Curriculum Laboratory, 1977.

B. *Nebraska Vocational Production Agriculture*. Lincoln, Nebraska: University of Nebraska, 1977.

C. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care:* Garden City, New York: Doubleday & Company, Inc., 1953.

BREEDS OF COMPANION ANIMALS
UNIT III

INFORMATION SHEET

I. Terms and definitions

- A. Purebred breeder—Breeder of animals whose ancestors are all of the same breed (may or may not be pedigreed)
- B. Bloodline—Family or family line of breeding
- C. Castration—Removal of the testicle of a male animal
- D. Get—Offspring of any animal, usually the sire
- E. Pedigree—Table presenting a line of ancestors for an animal
- F. Gelding—Castrated male horse
- G. Mare—Mature female horse five or more years of age
- H. Filly—Young female horse under five years of age
- I. Foal—Young horse of any sex up to a year old
- J. Colt—Young male horse under five years of age
- K. Stud (stallion)—Mature male horse five or more years of age
- L. Tom cat—Mature male cat one or more years of age
- M. Queen—Mature female cat
- N. Bitch—Mature female dog of one or more years of age
- O. Dog—Mature male dog
- P. Neutered—Castrated dog or cat
- Q. Brindle—Having dark streaks or spots on a gray or tawny background
- R. Grizzle—Gray hair coat
- S. Piebald—Two or more colors in patches

INFORMATION SHEET

II. Major breeds of long haired cats
   A. Persian
      1. Origin—Southern regions of Caspian Sea, bordering ancient kingdom of Persia
      2. Characteristics—Massive head, short back, short snub nose, small ears, short tail, and large paws set on low sturdy legs
   B. Angora
      1. Origin—Persia
      2. Characteristics—Narrow body, pointed head, long nose, always white in color, blue or copper eyes
   C. Himalayan
      1. Origin—United States and England
      2. Characteristics—Cross of Persian and Siamese; blue eyes, color similar to Siamese
   D. Maine Coon cat
      1. Origin—United States
      2. Characteristics—Semi-longhair, many colors; developed from interbreeding of many cats from foreign lands by Maine sailors; weight up to 16 lbs

III. Major breeds of shorthaired cats
   A. Domestic short hair
      1. Origin—England
      2. Characteristics—Variety of colors, very adaptive, solid build, full round chest, level spine
   B. Korat
      1. Origin—Thailand
      2. Characteristics—Blue tipped with silver, green-gold eyes
   C. Burmese
      1. Origin—Burma
      2. Characteristics—Saddle brown color, nose leather and paw pads are brown, eyes yellow to gold, sturdy stocky build

INFORMATION SHEET

D. Abyssinian

1. Origin—England
2. Characteristics—Long body, whip-like tail, large eyes, alert ears, hair ticked black or brown, red nose, gold to green eyes

E. Siamese

1. Origin—Siam
2. Characteristics—Lean, graceful; medium size with slim legs, long tail and head, almond shaped eyes, brown color

F. Russian blue

1. Origin—England
2. Characteristics—Fine boned, long ears, blue color, nose leather slate gray, green eyes

G. British blue

1. Origin—England
2. Characteristics—Tipped ears, copper eyes, lavender color develops with age

H. Havanna brown

1. Origin—England
2. Characteristics—Brown color, crossed between Siamese and domestic short hair, nose leather rosey tone, eyes chartreuse green

I. Manx

1. Origin—Isle of Mann
2. Characteristics—Large round head, prominent cheek bone, high hindquarter, short back, no tail

IV. Major breeds of sporting dogs

A. Pointer

1. Origin—Great Britain
2. Characteristics
    a. Color—Liver, lemon, black, orange, either combination white or solid-colored

INFORMATION SHEET

        b. Temperament—Even temperament and alert, good companion in both field and home

B. German Shorthair

    1. Origin—Germany before 1800

    2. Characteristics

        a. Color—Solid liver or in combination with white

        b. Temperament—Even temperament

C. German Wirehair

    1. Origin—Germany, 1850

    2. Characteristics

        a. Color—Liver and white

        b. Temperament—Friendly and energetic

D. Chesapeake Bay Retriever

    1. Origin—United States, 1807

    2. Characteristics

        a. Color—Any color from dark brown to a faded tan or deadgrass color

        b. Temperament—Happy disposition

E. Golden retriever

    1. Origin—Scotland, 1835

    2. Characteristics

        a. Color—Lustrous golden of various shades

        b. Temperament—Friendly, eager, alert, and self-confident

F. Labrador retriever

    1. Origin—Newfoundland, before 1822

INFORMATION SHEET

2. Characteristics
    a. Color—Black, yellow, or chocolate
    b. Temperament—Eager to please

G. Irish setter
  1. Origin—Ireland, early 1700's
  2. Characteristics
    a. Color—Mahogany or rich chestnut red
    b. Temperament—Sweet natured, trainable, good companion

H. English Setter
  1. Origin—England, 1550's
  2. Characteristics
    a. Color—Black, white, and tan; black and white; blue belton; lemon and white; lemon belton; orange and white; orange belton; liver and white; liver belton; and solid white
    b. Temperament—Loveable disposition, needs considerable exercise

I. Brittany Spaniel
  1. Origin—France, 1600's
  2. Characteristics
    a. Color—Orange and white, liver and white
    b. Temperament—Friendly disposition, well adjusted

J. Cocker Spaniel
  1. Origin—England, 1800's
  2. Characteristics
    a. Color—Black, tan, or liver
    b. Temperament—Great lover of home and family

INFORMATION SHEET

K. English Springer Spaniel

1. Origin—England

2. Characteristics

a. Color—Black or liver with white marking, white with black and liver markings, or tricolor of white, black, and liver

b. Temperament—Friendly, eager to please, quick to learn

L. Vizsla

1. Origin—Hungary, 1800

2. Characteristics

a. Color—Solid, rusty gold, or rather dark sandy yellow in different shades

b. Temperament—Gentle and friendly disposition

M. Weimaraner

1. Origin—Germany, early 1800's

2. Characteristics

a. Color—Solid color from mouse gray to silver gray

b. Temperament—Family dog, doesn't like to be kenneled

V. Major breeds of hounds

A. Afghan hound

1. Origin—Afghanistan, before 1800

2. Characteristics

a. Color—All pleasing colors

b. Temperament—Alloof and dignified, may tend to be sharp or shy

B. Basset Hound

1. Origin—France

2. Characteristics

a. Color—Any hound color

b. Temperament—Gentle disposition

INFORMATION SHEET

C. Beagle

1. Origin—Unknown
2. Characteristics
    a. Color—Any true hound color
    b. Temperament—Gentle, affectionate

D. Bloodhound

1. Origin—Mediterranean, before Christ
2. Characteristics
    a. Color—Black and tan, red and tan, or tawny
    b. Temperament—Extremely affectionate, somewhat shy

E. Coonhound

1. Origin—Normandy, 1800
2. Characteristics
    a. Color—Coal black with rich tan
    b. Temperament—Alert, friendly, eager, and aggressive

F. Dachshund

1. Origin—Europe, 1200's
2. Characteristics
    a. Color—Red, tan, red yellow, yellow, or brindle
    b. Temperament—Clever, lively, and friendly

G. Greyhound

1. Origin—Egypt, 2900 B.C.
2. Characteristics
    a. Color—Any color
    b. Temperament—Very nervous

INFORMATION SHEET

H. Norwegian Elkhound

   1. Origin—Norway, 5000 to 4000 B.C.
   2. Characteristics
      a. Color—Gray, medium preferred; undercoat light silver as are legs, stomach, buttocks, and underside of tail
      b. Temperament—Very loyal

VI. Major breeds of working dogs

A. Alaskan Malamute

   1. Origin—Unkown
   2. Characteristics
      a. Color—Light gray to black with white on underbodies
      b. Temperament—Affectionate, friendly

B. Belgian sheepdog

   1. Origin—Belgium
   2. Characteristics
      a. Color—Black or black with white
      b. Temperament—Very hard working and loyal

C. Boxer

   1. Origin—Europe, 1500's
   2. Characteristics
      a. Color—Fawn and brindle
      b. Temperament—Intelligent, fearless, agile, and strong

D. Collie

   1. Origin—Scotland and England
   2. Characteristics
      a. Color—Sable and white, tri-color, blue merle, white
      b. Temperament—Devoted family dog, shows particular affinity for small children

INFORMATION SHEET

E. Doberman Pinscher

1. Origin—Apolda, Germany, 1890

2. Characteristics

a. Color—Black, red, blue, and fawn (Isabella)

b. Temperament—Family dog and guard dog

F. German Shepherd

1. Origin—Germany

2. Characteristics

a. Color—Varies, usually strong rich colors

b. Temperament—Companion, protector and friend; some suspicion of strangers but once friendship is given it is given for life

G. Great Dane

1. Origin—Europe, before 1500

2. Characteristics

a. Color—Brindle, fawn, blue, black, and harlequin

b. Temperament—Spirited and courageous, never timid

H. Old English Sheepdog

1. Origin—England, before 1800

2. Characteristics

a. Color—Any shade of gray, grizzle, blue or blue-mered with or without white markings or in reverse

b. Temperament—Intelligent, affectionate, not boisterous, makes ideal house dog

I. St. Bernard

1. Origin—Switzerland, 200 A.D.

2. Characteristics

a. Color—White with red or red with white, red in various shades, brindle patches with white markings

b. Temperament—Usually friendly, can have a temper

INFORMATION SHEET

J. Siberian Husky

1. Origin—Siberia, 1800's

2. Characteristics

a. Color—All colors from black to pure white

b. Temperament—Naturely friendly and gentle

VII. Major breeds of terrier dogs

A. Airedale Terrier

1. Origin—England, 1864

2. Characteristics

a. Color—Head and ears tan, sides and upper body parts black or dark grizzle, possible red included in black, also possible small white blaze on chest

b. Temperament—Sweet disposition

B. Border Terrier

1. Origin—Great Britian

2. Characteristics

a. Color—Red, grizzle and tan, blue and tan or wheaten

b. Temperament—Good temperament, affectionate, obedient, and easily trained

C. Welsh Terrier

1. Origin—England

2. Characteristics

a. Color—Black and tan or black grizzle and tan

b. Temperament—Well mannered and easy to handle

INFORMATION SHEET

D. Miniature Schnauzer

  1. Origin—Germany, 1400's

  2. Characteristics

    a. Color—Salt and pepper, black and silver, and solid black

    b. Temperament—Intelligent, fond of children

E. Scottish Terrier

  1. Origin—Scotland

  2. Characteristics

    a. Color—Steel or irongray, brindled or grizzled, black, sandy or wheaten

    b. Temperament—Very gentle, fond of children

VIII. Major breeds of toy dogs

A. English Toy Spaniel

  1. Origin—England

  2. Characteristics

    a. Color—Solid colored or red with white

    b. Temperament—Very gentle

B. Maltese

  1. Origin—Malta, 900 B.C.

  2. Characteristics

    a. Color—Pure white

    b. Temperament—Affectionate, very gentle

C. Poodle (toy)

  1. Origin—Unknown

  2. Characteristics

    a. Color—Blue, gray, silver, brown, cream, cafe-au-lait, apricot, and shades thereof

    b. Temperament—Very nervous

INFORMATION SHEET

D. Pug

   1. Origin—China, 400 B.C.
   2. Characteristics
      a. Color—Silver or apricot, fawn, black
      b. Temperament—Very fond of children

E Yorkshire Terrier

   1. Origin—England
   2. Characteristics
      a. Color—Black and tan, tan, and black
      b. Temperament—Loves to play

IX. Major breeds of nonsporting dogs

A. Boston Terrier

   1. Origin—Boston, Mass., 1870
   2. Characteristics
      a. Color—Brindle with white markings or black with white markings
      b. Temperament—Gentle disposition

B. Bulldog

   1. Origin—British Isles, 1209
   2. Characteristics
      a. Color—Red brindle, all other brindles, solid red, fawn or fallow, piebald
      b. Temperament—Average temperament

C. Poodle

   1. Origin—Unknown
   2. Characteristics
      a. Color—Blue, gray, silver, brown, cafe-au-lait, apricot, cream, and shades of all of the above
      b. Temperament—Very nervous

INFORMATION SHEET

X. Major breeds of saddle horses (light horses)

A. American Paint

(NOTE: The breed association can be contacted by writing the American Paint Horse Association, P.O. Box 12487, Ft. Worth, Texas 76116)

1. Origin—United States
2. Characteristics—Two-toned, white and solid color; noted for speed, stamina, performance

B. American Quarter Horse

(NOTE: Breed association can be contacted by writing the American Quarter Horse Association, P.O. Box 200, Amarillo, Texas 79605)

1. Origin—United States
2. Characteristics—Color variable; height exceeding 15 hands; weight 1000-1200 lbs

C. Appaloosa

(NOTE: The breed association can be contacted by writing the Apaloosa Horse Club, Inc., P.O. Box 403, Moscow, Idaho 83843)

1. Origin—United States
2. Characteristics—Colorful spots; white over loin and hips; dark round or egg-shaped spots; eye is encircled with white like humans; skin is mottled; hoofs are striped vertically black and white

D. Arabian

(NOTE: The breed association can be contacted by writing the Arabian Horse Club Registry of America, One Executive Park, 7801 E. Belleview Avenue, Englewood, Colorado 80110)

1. Origin—Arabia
2. Characteristics—Medium to small size; short coupling; docile, great endurance; 14-15 hands high, weight 850-1100 lbs.; dished face, short alert ears, large clear eyes that are set wide apart, large nostrils, deep and wide jaws; less lumbar vertebrae and 1 or 2 fewer vertebrae in tail than any other horse

E. Morgan

(NOTE: The breed association can be contacted by writing the American Horse Club, Inc., Box 265, Westlake Moraine Rd., Hamilton, New York 13346)

INFORMATION SHEET

1. Origin—United States
2. Characteristics—Height 14 to 16 hands; weight 800 to 1,200 lbs.; bay, brown, black and chesnut; white marking not uncommon; noted for their stamina, docility, beauty, courage, and longevity

F. Palomino

(NOTE: The breed association can be contacted by writing the Palomino Horse Breeders of America, P.O. Box 249, Mineral Wells, Texas 76067)

1. Origin—United States
2. Characteristics—Golden color with white, silver, or ivory mane and tail; white markings on the face or below the knees acceptable; skin and eyes dark; height 15-2 to 16 hands; weight 1,000 to 1,200 lbs

G. Pinto

(NOTE: The breed association can be contacted by writing the Pinto Horse Association of America, Inc., P.O. Box 3984, San Diego, California 92103)

1. Origin—United States
2. Characteristics—White with large spots of color with white spots; height 13-2 to 16-2 hands; weight 750 to 1,300 lbs.; glassy eyes

CA-63-B

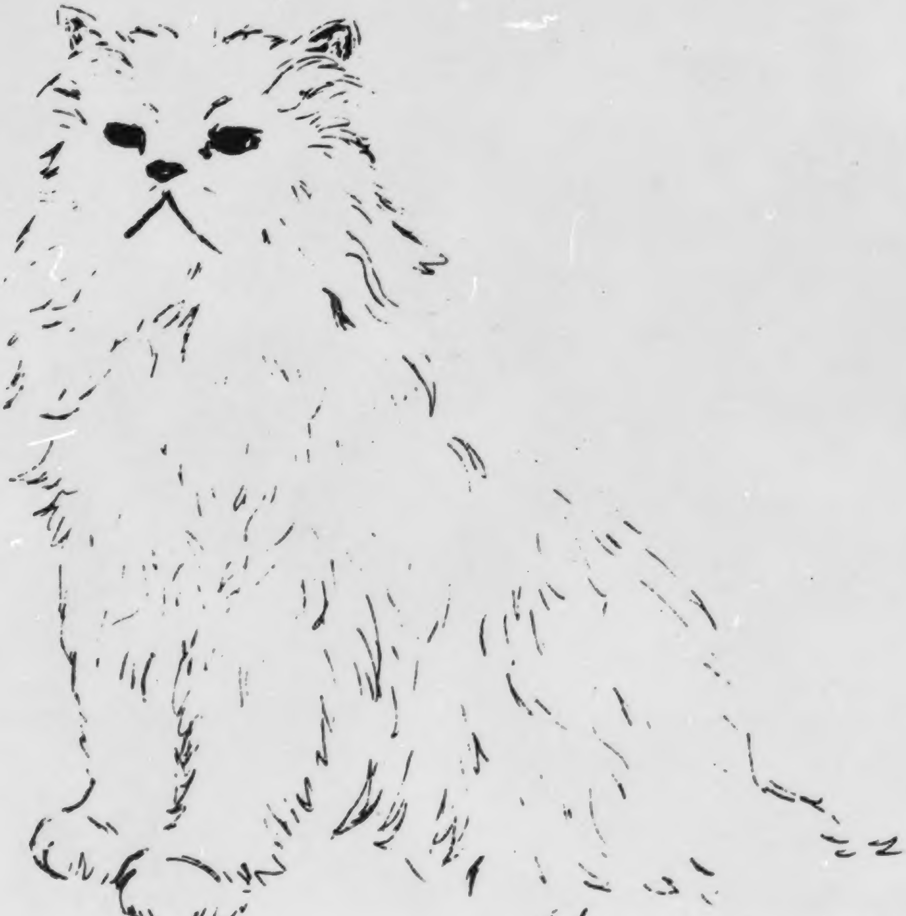
BREEDS OF LONG HAIR CATS

A. PERSIAN

B. ANGORA

C. HIMALAYAN

D. MAINE COON CAT



TM 1

BREEDS OF COMPANION ANIMALS
UNIT III

ASSIGNMENT SHEET #1—PREPARE A BREED NOTEBOOK

Assemble a notebook containing as many different breeds of companion animals within a certain time limit. The notebook should contain a picture, characteristics, and origin of each breed.

BREEDS OF COMPANION ANIMALS
UNIT III
TEST

1. Match the terms on the right to the correct definitions.

___ a. Removal of the testicle of a male animal

___ b. Mature male dog

___ c. Castrated dog or cat

___ d. Mature female cat

___ e. Young horse of any sex up to a year old

___ f. Mature female dog of one or more years of age

___ g. Breeder of animals whose ancestors are all of the same breed (may or may not be pedigreed)

___ h. Family or family line of breeding

___ i. Offspring of any animal, usually the sire

___ j. Table presenting a line of ancestors for an animal

___ k. Mature male horse five or more years of age

___ l. Castrated male horse

___ m. Young female horse under five years of age

___ n. Young male horse under five years of age

___ o. Mature male cat one or more years of age

___ p. Mature female horse five or more years of age

___ q. Gray hair coat

___ r. Having dark streaks or spots on a gray or tawny background

___ s. Two or more colors in a patch

1. Purebred breeder
2. Bloodline
3. Castration
4. Get
5. Gelding
6. Mare
7. Filly
8. Foal
9. Colt
10. Stud (stallion)
11. Tom cat
12. Queen
13. Bitch
14. Dog
15. Neutered
16. Pedigree
17. Brindle
18. Grizzle
19. Piebald

2. Describe the two major breeds of long haired cats listed below.
   a. Angora
      1) Origin
      2) Characteristics
   b. Persian
      1) Origin
      2) Characteristics

3. Describe the two major breeds of short haired cats listed below.
   a. Domestic short hair
      1) Origin
      2) Characteristics
   b. Siamese
      1) Origin
      2) Characteristics

4. Describe the three major breeds of sporting breeds listed below.
   a. Pointer
      1) Origin
      2) Characteristic
   b. Labrador retriever
      1) Origin
      2) Characteristics
   c. Cocker Spaniel
      1) Origin
      2) Characteristics

5. Describe the two major breeds of hounds listed below.
   a. Afghan Hound
      1) Origin
      2) Characteristics
   b. Dachshund
      1) Origin
      2) Characteristics

6. Describe the two major breeds of working dogs listed below.
   a. Boxer
      1) Origin
      2) Characteristics
   b. Collie
      1) Origin
      2) Characteristics

7. Describe the two major breeds of terrier dogs listed below.
   a. Airedale Terrier
      1) Origin
      2) Characteristics

b. Welsh Terrier

1) Origin 2) Characteristics

8. Describe the one major breed of toy dogs listed below.

a. Poodle (toy)

1) Origin 2) Characteristics

9. Describe the one major breed of nonsporting dogs listed below.

a. Bulldog

1) Origin 2) Characteristics

10. Describe the three major breeds of saddle horses (light horses) listed below.

a. American Quarter Horse

1) Origin 2) Characteristics

b. Appaloosa

1) Origin

2) Characteristics

c. Arabian

1) Origin

2) Characteristics

BREEDS OF COMPANION ANIMALS
UNIT III
ANSWERS TO TEST

1. a. 3
   b. 14
   c. 15
   d. 12
   e. 8
   f. 13
   g. 1
   h. 2
   i. 4
   j. 16
   k. 10
   l. 5
   m. 7
   n. 9
   o. 11
   p. 6
   q. 18
   r. 17
   s. 19

2.

	Origin	Characteristics
a. Angora	Persia	Narrow body, pointed head, long nose, always white, blue or copper eyes
b. Persian	Southern regions of Caspian Sea, bordering ancient Kingdom of Persia	Massive head, short back, short snob nose, small ears, short tail, and large paws set on low sturdy legs

3.

	Origin	Characteristics
a. Domestic short hair	England	Variety of colors, very adaptive, solid build, full round chest, level spine
b. Siamese	Siam	Lean, graceful; medium size with slim legs, long tail and head, almond shaped eyes, brown color

4.

	Origin	Characteristics
a. Pointer	Great Britain	Liver, lemon, black, orange, even temperament and alert, good companion in both field and home

	Origin	Characteristics
b. Labrador retriever	Newfoundland, before 1822	Black, yellow, or chocolate; eager to please
c. Cocker spaniel	England, 1800's	Black, tan, or liver color; great lover of home and family

5.		Origin	Characteristics
a.	Afghan hound	Afghanistan, before 1800	All pleasing colors; aloof and dignified, may tend to be sharp, shy
b.	Dachshund	Europe, 1200's	Red tan, red/yellow, yellow, or brindle; clever, lively, and friendly

6.		Origin	Characteristics
a.	Boxer	Europe, 1500's	Fawn and brindle; intelligent, fearless, agile and strong
b.	Collie	Scotland and England	Sable and white tri-color, blue merle, white; devoted family dog, shows particular affinity for small children

7.		Origin	Characteristics
a.	Airedale	England, 1864	Head and ears tan, sides and upper body parts black or dark grizzle, possible red included in black, also possible small white blaze on chest; sweet disposition
b.	Welsh Terrier	England	Black and tan or black grizzle and tan; well mannered and easy to handle

8.		Origin	Characteristics
	Poodle (toy)	Unknown	Blue, gray, silver, brown, cream, apricot, caufe-au-lait, and shades thereof; very nervous

9.		Origin	Characteristics
	Bulldog	British Isle, 1209	Red brindle, all other brindles, solid white, solid red, fawn or fallow, piebald; average temperament

10.		Origin	Characteristics
a.	American quarter horse	United States	Color variable; height exceeding 15 hands; weight 1000-1200 lbs
b.	Appaloosa	United States	Colorful spots; white over loin and hips; dark, round or egg shaped spots; eye is encircled with white like human's, skin is mottled; hoofs are striped vertically black and white
c.	Arabian	Arabia	Medium to small size; short coupling; docile, great endurance; 14-15 hands high, weight 850-1100 lbs.; dished face, short alert ears, large clear eyes that are set wide apart, large nostrils, deep and wide jaws; less lumbar vertebrae and 1 or 2 fewer vertebrae in tail than any other horse

COMPANION ANIMAL NUTRIENTS
UNIT IV

UNIT OBJECTIVE

After completion of this unit, the student should be able to discuss the effects of feeding antibiotics and write the purpose of feed additives. The student should be able to match nutrients with their sources, functions, and deficiency symptoms. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal nutrients to the correct definitions.
2. List the six major classes of nutrients.
3. Select from a list two types of protein.
4. Match nutrients with their functions.
5. Select from a list the major minerals.
6. List three minor or trace minerals.
7. Match nutrients to their sources.
8. Match vitamins to the correct deficiency symptoms.
9. Match minerals to the correct deficiency symptoms.
10. Write the purpose of feed additives.
11. Discuss the effects of feeding antibiotics.

COMPANION ANIMAL NUTRIENTS
UNIT IV

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide student with objectives.

  B. Provide student with information sheet.

  C. Discuss unit and specific objectives.

  D. Discuss information sheet.

  E. Provide opportunity for student to look at a feed tag.

  F. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheet and take notes.

  C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objective sheet

  B. Information sheets

  C. Test

  D. Answers to test

II. References:

  A. Cassard, Daniel W., and Elwood M. Juergenson. *Approved Practices in Feeds and Feeding*. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1963.

  B. Morrison, Frank B. *Feeds and Feeding, Abridged*, 9th ed. Claremont, Ontario, Canada: Morrison Publishing Company, 1961.

C. *Instructional Materials for Vocational Agriculture II.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

D. *Nutrient Requirements for Beef Cattle,* 4th ed. National Academy of Sciences, 1970.

E. Bundy, Clarence E., and Ronald V. Diggins. *Livestock and Poultry Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975.

COMPANION ANIMAL NUTRIENTS
UNIT IV
INFORMATION SHEET

I. Terms and definitions

A. Nutrient—Single class of foods or group of like foods that aid in the support of life

B. Total digestible nutrient (TDN)—That portion of a nutrient which may be digested and taken into the animal body

C. Feed additive—Powerful substance which is added in small amounts to feeds for promoting rapid growth, for more efficient feed utilization, and for disease treatment

D. Protein—Nutrient which supplies building materials for body growth and repair

E. Digestible protein--Amount of crude protein in a feed that can be digested by the animal

F. Starch—Carbohydrate which supplies energy to animals

G. Vitamin—Complex chemical essential for normal body functions

H. Mineral—Element which is necessary for proper body functions and life processes

I. Amino acid—Building block of protein

J. Antibiotic--Substance used in small amounts to help prevent and control certain diseases in animals

K. Urea--Synthetic protein substance used in ruminant rations

L. Essential amino acids—Those that cannot be produced by the animal itself

II. Major classes of nutrients

A. Water

B. Protein

C. Carbohydrate

D. Mineral

E. Vitamin

F. Fat

INFORMATION SHEET

III. Two types of protein

  A. Plant

    Examples: Soybean meal, cottonseed meal, linseed meal

  B. Amimal

    Examples: Tankage, fish meal, meat scraps, dried milk products

IV. Functions of nutrients

  A. Water

    1. Transports nutrients and waste materials
    2. Regulates body temperature

  B. Protein

    1. Develops muscle tissue
    2. Repairs worn-out tissue

  C. Carbohydrate

    1. Supplies heat and energy
    2. Stores heat and energy

  D. Mineral

    1. Aids in skeletal development
    2. Provides chemical balance for proper body functions

  E. Vitamins

    1. Vitamin A
      a. Aids in disease resistance
      b. Aids in development of nerve cells
    2. Vitamin D—Aids in skeletal development (bones, teeth, etc.)
    3. Vitamin E—Is necessary for reproduction
    4. Vitamin K—Is necessary for blood clotting

INFORMATION SHEET

5. Vitamin B
    a. Promotes growth
    b. Prevents skin infections

F. Fat
    1. Provides source of energy
    2. Provides source of insulation

V. Major minerals
    A. Calcium (Ca)
    B. Phosphorus (P)
    C. Sodium Chloride (NaC)
    D. Potassium (K)
    E. Sulfur (S)

VI. Minor or trace minerals
    A. Iron (Fe)
    B. Copper (Cu)
    C. Zinc (Zn)
    D. Iodine (I)
    E. Cobalt (Co)
    F. Magnesium (Mg)

VII. Sources of nutrients
    A. Protein
        1. Cottonseed meal
        2. Linseed meal
        3. Soybean meal
        4. Skim milk
        5. Tankage
        6. Alfalfa hay

INFORMATION SHEET

B. Carbohydrate

   1. Cereal grains

      Examples: Wheat, oats, barley, corn

   2. Nonlegume roughage

   3. Molasses

C. Fat

   1. Tallow

   2. Animal products

   3. Seeds

D. Minerals (Found in almost all common livestock feeds and commercially prepared mineral and trace mineral mixes.)

   1. Calcium—Good quality roughages

   2. Phosphorus—High protein concentrate, steamed bone meal, and rock phosphate

   3. Sodium chloride—Salt block

   4. Potassium—Feed sources

   5. Sulfur—Feed sources

   6. Iron—Good roughage

   7. Copper—Feed sources (use pre-mix)

   8. Zinc—Feed sources (use pre-mix)

   9. Iodine—Iodized salt

   10. Cobalt—Cobalt supplement

   11. Magnesium-Magnesium sulphate

E. Vitamins (Found in most livestock feeds, produced in the rumen, and available in commercial vitamin premixes.)

   1. A-Alfalfa hay, dehydrated alfalfa meal, and fish oil

   2. B-Produced in the rumen (commercial sources)

   3. D-Sun cured hay of good quality

INFORMATION SHEET

4. K-Produced in the rumen (commercial sources)
5. E-Good quality leafy alfalfa hay or green feed and cereal grains

VIII. Symptoms of vitamin deficiencies

A. Vitamin A
   1. Blindness
   2. Loss of young
   3. Poor development of bones
   4. Slow growth

B. Vitamin D
   1. Bone deformities
   2. Rickets

C. Vitamin E
   1. Loss of young
   2. Failure to reproduce

D. Vitamin K
   1. Internal bleeding
   2. Lung deformities resulting in death

E. Vitamin B complex
   1. Muscular weakness
   2. Abnormalities of young

IX. Symptoms of mineral deficiencies

A. Calcium
   1. Rickets
   2. Broken bones
   3. Poor gains
   4. Milk fever

INFORMATION SHEET

B. Phosphorus
    1. Lameness
    2. Stiffness of joints
    3. Less appetite
    4. Reduced rate of gain
    5. Decreased heat cycle

C. Sodium chloride
    1. Lack of appetite
    2. Unthrifty appearance

D. Potassium
    1. Slow growth rate
    2. Reduced feed consumption
    3. Stiffness
    4. Shock

E. Sulfur-Unthriftiness

F. Iron-Anemia

G. Iodine
    1. Hairless pigs
    2. Goiter

H. Copper-Anemia

I. Cobalt
    1. Loss of appetite
    2. Unthriftiness
    3. Delayed sexual development

INFORMATION SHEET

J. Manganese

1. Reduced fertility
2. Abortion
3. Deformed young
4. Enlarged joints
5. Stiffness
6. Twisted legs

X. Purpose of feed additives (growth stimulants)—Increase growth and feed efficiency

Examples: Stilbestrol, progesterone testosterone, synovex, rumensin, MGA

XI. Effects of feeding antibiotics

Examples: Aureomycin, Terramycin, Penicillin, Streptomycin, Mecadox

A. Increased gains

B. Prevention and control of certain diseases

COMPANION ANIMAL NUTRIENTS
UNIT IV

TEST

1. Match terms on the right to the correct definition.

___ a. Nutrient which supplies building materials for body growth and repair

___ b. Element which is necessary for proper body functions and life processes

___ c. Amount of crude protein in a feed that can be digested by the animal

___ d. Substance used in small amounts to help prevent and control certain diseases in animals

___ e. Carbohydrate which supplies energy to animals

___ f. Synthetic protein substance used in ruminant rations

___ g. That portion of a nutrient which may be digested and taken into the animal body

___ h. Building block of protein

___ i. Powerful substance which is added in small amounts to feeds for promoting rapid growth, for more efficient feed utilization, and for disease treatment

___ j. Single class of foods or group of like foods that aid in the support of life

___ k. Complex chemical essential for normal body functions

1. Nutrient
2. Total digestible nutrient (TDN)
3. Feed additive
4. Protein
5. Digestible protein
6. Starch
7. Vitamin
8. Mineral
9. Amino acid
10. Antibiotic
11. Urea

2. List the six major classes of nutrients.

a.

b.

c.

d.

e.

f.

3. Select from the list below two types of protein by placing an "X" in the blanks.

______a. Old

______b. Plant

______c. New

______d. Animal

______e. Yellow

______f. Supplement

______g. Corn

4. Match the nutrients on the right to the correct functions.

____ a. Supplies heat and energy; stores heat and energy

____ b. Transports nutrients and waste materials; regulates body temperature

____ c. Aids in skeletal development; provides chemical balance for proper body functions

____ d. Provides source of energy; provides source of insulation

____ e. Develops muscle tissue; repairs worn-out tissue

1. Water
2. Protein
3. Carbohydrate
4. Mineral
5. Fat

5. Select from the list below the major minerals by placing an "X" in the blanks.

______a. Calcium

______b. Gold

______c. Phosphorus

______d. Sodium chloride

______e. Silver

______f. Sulfur

______g. Argon

______h. Helium

______i. Potassium

______j. Boron

______k. Silica

______l. Sugar

6. List three minor or trace minerals.

a.

b.

c.

7. Match the nutrients on the right to the proper source or sources. Nutrients may be used more than once.

___ a. Tallow
___ b. Seeds
___ c. Commercial vitamin premix
___ d. Cottonseed meal
___ e. Cereal grains
___ f. Skim milk
___ g. Animal products
___ h. Soybean meal
___ i. Commercially prepared mineral and trace mineral mix
___ k. Tankage
___ l. Molasses
___ m. Alfalfa hay

1. Protein
2. Carbohydrate
3. Fat
4. Mineral
5. Vitamin

8. Match the vitamins on the right to the correct deficiency symptom.

___ a. Internal bleeding; lung deformities resulting in death
___ b. Blindness; loss of young; poor development of bones; slow growth
___ c. Loss of young; failure to reproduce
___ d. Muscle weakness; abnormalities of young
___ e. Bone deformities; rickets

1. Vitamin A
2. Vitamin B complex
3. Vitamin D
4. Vitamin E
5. Vitamin K

9. Match the minerals on the right to the correct deficiency symptom.

____ a. Lameness; stiffness of joints; less appetite; reduces rate of gain; decreased heat cycle

____ b. Loss of appetite; unthriftiness; delayed sexual development

____ c. Slow growth rate; reduced feed consumption; stiffness; shock

____ d. Hairless pigs; goiter

____ e. Anemia

____ f. Rickets; broken bones; poor gains; milk fever

1. Calcium
2. Phosphorus
3. Potassium
4. Iron
5. Iodine
6. Cobalt

10. Write the purpose of feed additives.

11. Discuss the effects of feeding antibiotics.

COMPANION ANIMAL NUTRIENTS
UNIT IV
ANSWERS TO TEST

1. a. 4
   b. 8
   c. 5
   d. 10
   e. 6
   f. 11
   g. 2
   h. 9
   i. 3
   j. 1
   k. 7
2. a. Water
   b. Protein
   c. Carbohydrate
   d. Mineral
   e. Vitamin
   f. Fat
3. b, d
4. a. 3
   b. 1
   c. 4
   d. 5
   e. 2
5. a, c, d, f, i
6. Any three of the following:
   a. Iron
   b. Copper
   c. Zinc
   d. Iodine
   e. Cobalt
   f. Magnesium

7. a. 3
   b. 3
   c. 5
   d. 1
   e. 2
   f. 1
   g. 3
   h. 1
   i. 2
   j. 4
   k. 1
   l. 2
   m. 1

8. a. 5
   b. 1
   c. 4
   d. 2
   e. 3

9. a. 2
   b. 6
   c. 3
   d. 5
   e. 4
   f. 1

10. Increase growth and feed efficiency.

11. Discussion should include:
    a. Increased gains
    b. Prevention and control of certain diseases

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

UNIT OBJECTIVE

After completion of this unit, the student should be able to complete a chart showing the composition of feed, determine value of a feed, classify feeds into concentration and roughage, and compute rations by the Pearson's square and trial and error methods. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to

1. Match terms associated with composition and classification of feeds to the correct definitions.
2. Complete a chart showing composition of feed.
3. List three methods used to determine value of a feed.
4. Classify feeds into the proper category.
5. Select from a list three requirements that every commercial feed company must state on its feed tag.
6. Classify sugars as compound or simple.
7. Describe the procedure for determining water and dry matter content of a feed.
8. Balance a ration using the Pearson's square method.
9. Balance a ration for digestible protein, dry matter, and total digestible nutrients using the trial and error method.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and assignment sheets.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Discuss information sheet and procedures for completing the assignment sheets.

   F. Provide the students with a copy of a commercial feed tag.

   G. Take students on a field trip to a food company to see how feeds are mixed and rations are determined, if possible.

   H. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheet.

   C. Complete assignment sheets.

   D. Attempt to figure a ration for animals included in supervised training program.

   E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objectives

   B. Information sheet

C. Transparency masters

  1. TM 1—Feed Composition
  2. TM 2—Classification of Concentrates
  3. TM 3—Classification of Roughages
  4. TM 4—Commercial Feed Tag

D. Assignment sheets

  1. Assignment Sheet #1—Determining TDN and Digestible Protein Content of Basic Feeds
  2. Assignment Sheet #2—Balancing Rations Using Pearson's Square
  3. Assignment Sheet #3—Working a Sample Ration for Fattening a Beef Animal

E. Answers to assignment sheets

F. Test

G. Answers to test

II. References:

A. *General Facts on Livestock Feeding.* Urbana, Illinois: University of Illinois.

B. Morrison, Frank B. *Feeds and Feeding, Abridged*, 9th ed. Claremont, Ontario, Canada: Morrison Publishing Company, 1961.

C. Cassard, Daniel W., and Elwood M. Juergenson. *Approved Practices in Feeds and Feeding.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

INFORMATION SHET

I. Terms and definitions

- A. Fiber—Tough part of a feed; not very digestible
- B. Roughage—Feed that is high in fiber or nondigestible material and low in total digestible nutrients
- C. Concentrate—Feed that is high in total digestible nutrients and low in fiber
- D. Silage—Feed from crops cured and stored green or without drying
- E. Ration—Feed allowed for a given animal during a day of twenty-four hours

  (NOTE: The feed may be fed all at once or at intervals throughout the day.)
- F. Balanced ration—Ration which furnishes the several nutrients in such proportion and amount as will properly nourish a given animal for twenty-four hours
- G. Supplement—Protein or vitamin added to a feed
- H. Crude protein—Total amount of protein contained in a feed
- I. Digestible protein—Portion of crude protein which may be digested by the animal
- J. Total digestible nutrients (TDN)—That portion of a feed which is digested and used in the animal's body
- K. Pasturage—Plant growth available to animals on the range or in the pasture
- L. Protein—Organic compound consisting of carbon, hydrogen, oxygen, nitrogen, and sulfur
- M. Fat—Organic compound composed of carbon, hydrogen, and oxygen
- N. Dry matter (DM)—Average percentage of dry material in a feed found by weighing the feed, drying by heat, and reweighing

INFORMATION SHEET

II. Composition of feed (Transparency 1)

A. Water

B. Dry matter

1. Ash (minerals)

2. Organic matter

a. Protein

b. Carbohydrates

1) Crude fiber (cellulose)

2) Nitrogen-free extract

a) Simple sugar

b) Starch

c. Compound sugar

c. Vitamins

d. Fats

III. Methods used to determine value of feed

A. Cost per pound of TDN

B. Cost per pound of protein

C. Cost per pound of feed

IV. Classification of feeds

A. Concentrates (Transparency 2)

1. Grains

Examples: Corn, wheat, oats, milo, barley

2. Grain by-products

Examples: Wheat bran, wheat standard middlings

3. Molasses

Examples: Cane, beet

INFORMATION SHEET

4. Oil meals

   Examples: Soybean, cottonseed, linseed, peanuts

5. Animal products

   Examples: Meat scraps, tankage, fish meal, dried dairy products

B. Roughages (Transparency 3)
   1. Dry
      a. Hays

         Examples: Grass, legume, alfalfa

      b. Hulls

         Examples: Cottonseed, peanut, rice

      c. Straws

         Examples: Wheat, oats, barley

   2. Green
      a. Roots

      b. Grasses

      c. Tubers

   3. Silage
      Examples: Corn forage, sorghum forage, grass

V. Commercial feed tag requirements (Transparency 4)
   A. Minimum of crude protein

   B. Minimum of crude fat

   C. Maximum of crude fiber

   (NOTE: Laws govern the sale of commercial feeds and mineral mixtures to protect the purchaser. The ingredients of a mixture must be labeled with contents, but the percentage of each is not required.)

VI. Classification of sugars
   A. Simple
      1. Glucose

      2. Fructose

      3. Galactose

INFORMATION SHEET

B. Compound

1. Maltose
2. Sucrose
3. Lactose

VII. Procedure for determining water and dry matter content of feed

A. Weigh feed

B. Dry in oven

C. Weigh again

(NOTE: The difference in the weights is the water or moisture content. Dry matter content should be the same as second weighing. Generally, feed grains are about 90 percent dry matter and 10 percent moisture.)

RAMS—Lambs and yearlings

80	0.40	3.2	4.0	62	10.0	5.5	.32
100	0.30	3.7	3.7	57	8.6	4.7	.32
120	0.20	4.2	3.5	50	7.6	4.2	.32
140	0.10	4.6	3.3	50	69	3.8	.32
160	0.10	4.8	3.0	50	6.6	3.6	.32

LAMBS—Fattening

60	0.35	2.7	.5	55	12.0	6.6	.32
70	0.40	3.1	4.4	58	11.0	6.1	.34
80	0.45	3.4	4.3	62	10.7	5.9	.36
90	0.45	3.7	4.2	62	9.5	5.3	.35
100	0.40	3.9	3.9	62	.94	5.2	.37

Courtesy of Dr. Joe Hughes, Animal Science Department, Oklahoma State University, Stillwater, Oklahoma.

INFORMATION SHEET

VIII. Balancing rations using Pearson's square method

A. Select amount of protein required

B. Place in square

C. Select feeds

D. Cross-subtract

(NOTE: This gives parts of each feed needed in the ration.)

Example:

		Part	%	#/100#
Milo 8.5%		25	77	77#
	16%			
SBM 41.0%		7.5	23	23#
		32.5	100%	100#

IX. Balancing rations for dry matter, digestible protein, and total digestible nutrients—Trial and error method

A. Determine type of animal

B. Look up requirements of the animal in Morrison's *Feeds and Feeding*, Table III

C. Select feeds to use

D. Look up composition (Morrison's *Feeds and Feeding*, Table I)

E. Determine amount of each feed in the ration

F. Compute the ration

INFORMATION SHEET

Example:

	DM	DP	TDN
Corn	85.0%	7.0%	80.0%
Oats	90.2%	9.4%	70.1%
Alfalfa hay	90.5%	10.9%	50.7%

Alfalfa 9.4#	DM	DP	TDN
	.905	.109	.507
	x9.4	x9.4	x9.4
	8.507	1.024	4.766
Corn 1.5#	.850	.070	.794
	x1.5	x1.5	x1.5
	1.275	.105	1.191
Oats 1.5#	.920	.094	.701
	x1.5	x1.5	x1.5
	1.353	.141	1.051

Example of trial and error method, 400# dairy heifer Ration too high in protein

	Dry matter Lbs.	Digestible protein Lbs.	Total digestible nutrients Lbs.
Requirements	9.1-11.4	0.76-0.87	6.0-7.0
Ration			
Alfalfa hay, 9.4 lbs	8.51	1.02	4.77
Corn, No. 2, 1.5 lbs.	1.28	0.10	1.20
Oats, 1.5 lbs.	1.35	0.14	1.05
Total	11.14	1.26	7.02

Ration too low in protein

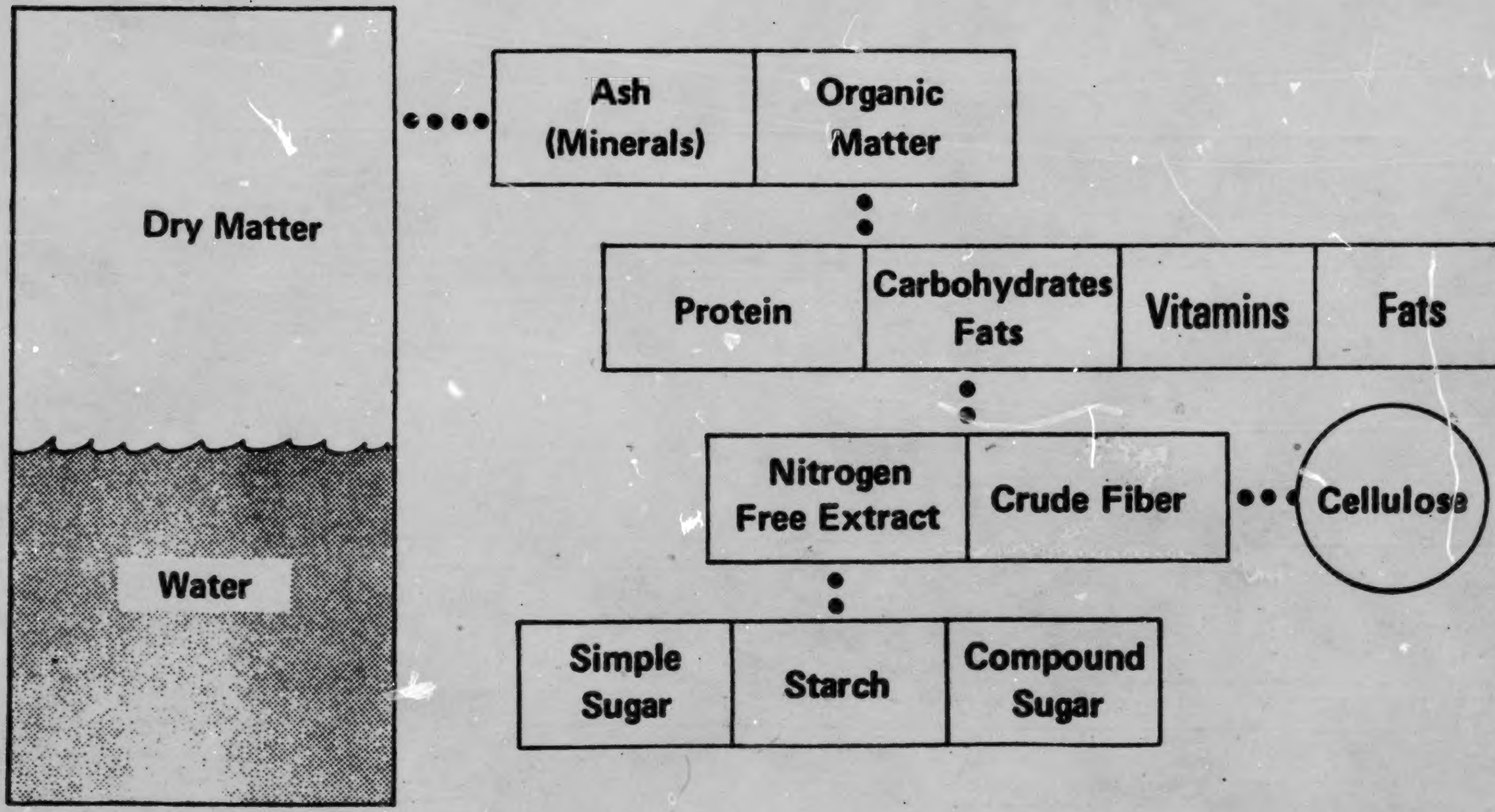
	Dry matter Lbs.	Digestible protein Lbs.	Total digestible nutrients Lbs.
Requirements	9.1-11.4	0.76-0.87	6.0-7.0
Ration			
Timothy hay, 6.0 lbs.	5.34	0.18	2.95
Corn silage, 10.0 lbs.	2.76	0.12	1.63
Corn, No. 2, 1.5 lbs.	1.28	0.10	1.20
Oats, 1.5 lbs.	1.35	0.14	1.05
Total	10.73	0.54	7.03

INFORMATION SHEET

A balanced ration

	Dry matter Lbs.	Digestible protein Lbs.	Total digestible nutrients Lbs.
Requirements	9.1-11.4	0.76-0.87	6.0-7.0
Ration			
Timothy hay, 6.0 lbs.	5.34	0.18	2.95
Corn silage, 10.0 lbs.	2.76	0.12	1.83
Corn, No. 2, 0.75 lb.	0.64	0.05	0.60
Oats, 0.75 lb.	0.68	0.07	0.53
Linseed meal, 1.5 lbs.	1.37	0.46	1.13
Total	10.79	0.88	7.04

Feed Composition



Dry Matter

Water

Ash (Minerals)

Organic Matter

Protein

Carbohydrates Fats

Vitamins

Fats

Nitrogen Free Extract

Crude Fiber

Cellulose

Simple Sugar

Starch

Compound Sugar

TM 1

CA-105-B

Classification of Concentrates

OIL MEALS

Soybean
Cottonseed
Linseed
Peanut

MOLASSES

Cane
Beet

GRAIN BY-PRODUCTS

Wheat bran
Wheat standard middlings

ANIMAL PRODUCTS

Meat scraps
Tankage
Fish meal
Dried dairy products

GRAINS

Barley
Wheat
Corn
Milo
Oats

Classification of Roughages

GREEN ROUGHAGES

Roots

Grasses

Tubers

DRY ROUGHAGES

Hays–
  Grass and Legume

Hulls–
  Peanut and Cottonseed

Straw–
  Oat, Wheat,
  Barley, and Rice

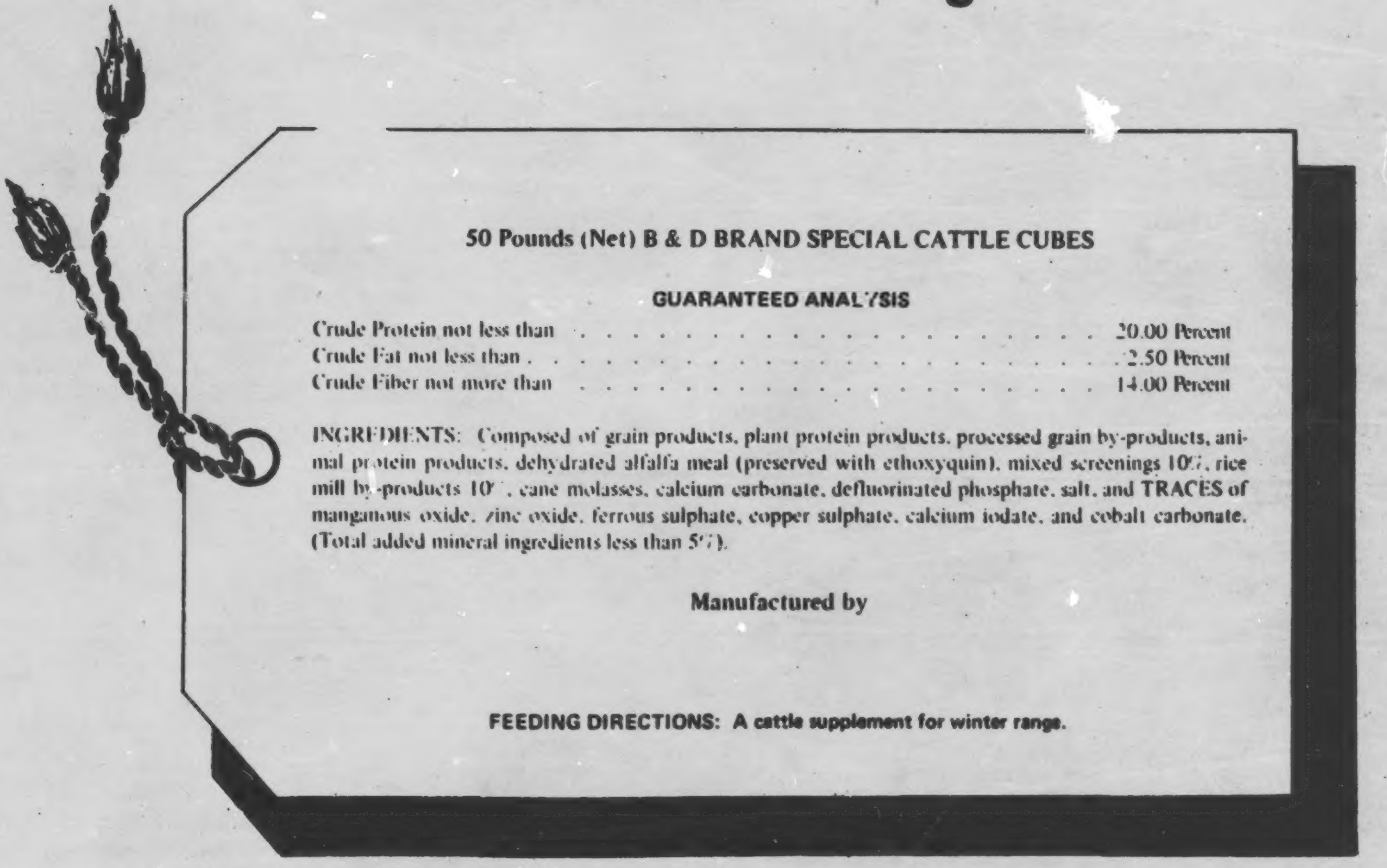
SILAGE

Corn

Sorghum

Grass

Commercial Feed Tag



50 Pounds (Net) B & D BRAND SPECIAL CATTLE CUBES

GUARANTEED ANALYSIS

Crude Protein not less than	20.00 Percent
Crude Fat not less than	2.50 Percent
Crude Fiber not more than	14.00 Percent

INGREDIENTS: Composed of grain products, plant protein products, processed grain by-products, animal protein products, dehydrated alfalfa meal (preserved with ethoxyquin), mixed screenings 10%, rice mill by-products 10%, cane molasses, calcium carbonate, defluorinated phosphate, salt, and TRACES of manganous oxide, zinc oxide, ferrous sulphate, copper sulphate, calcium iodate, and cobalt carbonate. (Total added mineral ingredients less than 5%).

Manufactured by

FEEDING DIRECTIONS: A cattle supplement for winter range.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

ASSIGNMENT SHEET NO. 1—DETERMINING TDN AND DP CONTENT OF BASIC FEEDS

Using Table I of Morrison's *Feeds and Feeding*, calculate the TDN and DP of the following feeds.

1. How many pounds of TDN are there in:
    a. 50 pounds of No. 1 yellow corn
    b. 30 pounds of milo grain
    c. 50 pounds of wheat, average all types
    d. 50 pounds of oats, Pacific Coast states
    e. 20 pounds of alfalfa hay, all analyses
2. How many pounds of DP are there in each of the above pounds of feed?
    a.
    b.
    c.
    d.
    e.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

ASSIGNMENT SHEET NO. 2—BALANCING RATIONS USING PEARSON'S SQUARE

Determine the total parts needed in a 16% ration using 8.5% DP milo and 41.0% cottonseed meal. Show your work.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

ASSIGNMENT SHEET NO. 3—WORKING A SAMPLE RATION FOR FATTENING A BEEF ANIMAL

Balance a sample ration for an 800 pound beef fattening animal for DM, TDN, and DP. Use Morrison's *Feed and Feeding* for reference.

Animal Requirements	DM	DP	TDN
Use the following grains:			
Corn, dent, Grade No. 1			
Soybean meal 41%			
Cottonseed hulls			

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

TEST

1. Match the terms on the right to the correct definition.

____ a. Feed that is high in total digestible nutrients and low in fiber

____ b. Organic compound composed of carbon, hydrogen, and oxygen

____ c. Feed from crops cured and stored green or without drying

____ d. That portion of a feed which is digested and used in the animal's body

____ e. Protein or vitamin added to a feed

____ f. Ration which furnishes the several nutrients in such proportion and amount as will properly nourish a given animal for twenty-four hours

____ g. Feed that is high in fiber or nondigestible material and low in total digestible nutrients

____ h. Average percentage of dry material in a feed found by weighing the feed, drying by heat, and reweighing

____ i. Portion of crude protein which may be digested by the animal

____ j. Feed allowed for a given animal during a day of twenty-four hours

____ k. Tough part of a feed; not very digestible

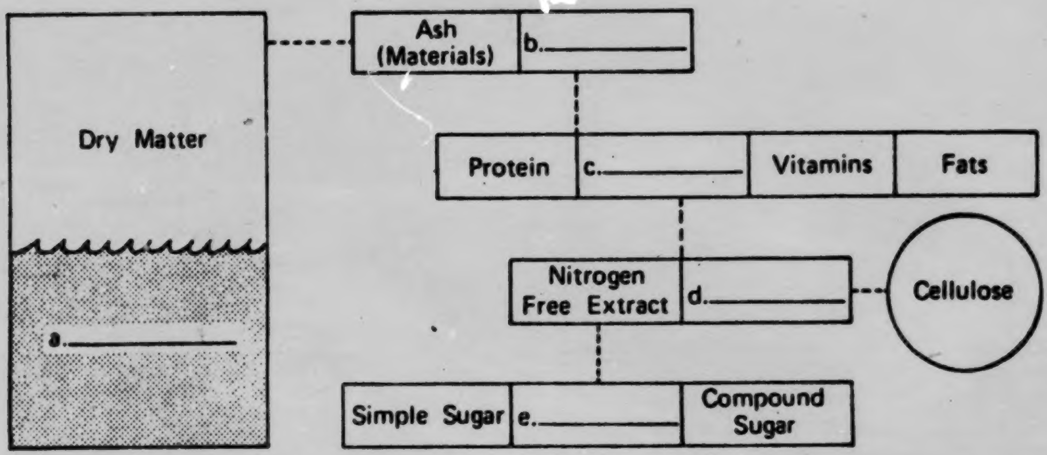
____ l. Organic compound consisting of carbon, hydrogen, oxygen, nitrogen, and sulfur

____ m. Plant growth available to animals on the range or in the pasture

____ n. Total amount of protein contained in a feed

1. Roughage
2. Concentrate
3. Silage
4. Ration
5. Balanced ration
6. Fiber
7. Supplement
8. Crude protein
9. Digestible protein
10. Total digestible nutrients (TDN)
11. Pasturage
12. Protein
13. Fat
14. Dry matter (DM)

2. Complete the following chart showing the composition of a feed.


Dry Matter
a. ____
Ash (Materials)
b. ____
Protein
c. ____
Vitamins
Fats
Nitrogen Free Extract
d. ____
Cellulose
Simple Sugar
e. ____
Compound Sugar

3. List three methods used to determine value of a feed.

a.

b.

c.

4. Classify the following feeds by placing a "C" in front of the concentrates and an "R" in front of the roughages.

___ a. Grains (corn)

___ b. Hays (alfalfa)

___ c. Grain by-products (wheat bran)

___ d. Molasses (cane)

___ e. Cottonseed hulls

___ f. Wheat straw

___ g. Soybean oil meal

___ h. Meat scraps

5. Select from the list below three requirements that every commercial feed company must state on its feed tag by placing an "X" in the blanks.

____ a. Percentage of corn

____ b. Minimum of crude protein

____ c. Minimum of crude fat

____ d. Minimum of crude fiber

____ e. Maximum of crude protein

____ f. Maximum of crude fiber

6. Classify the following list of sugars by placing a "C" in front of the compound sugars and an "S" in front of the simple sugars.

____a. Glucose ____d. Fructose

____b. Maltose ____e. Sucrose

____c. Galactose ____f. Lactose

7. Describe in a short paragraph the procedure for determining water and dry matter content of a feed.

8. Balance a ration using Pearson's square method.

Corn 7.0% a. ___ d. ___

18%

Soybean meal 44% b. ___ e. ___

c. ___ 100#

9. Balance a ration for digestible protein, dry matter, and total digestible nutrients using the trial and error method.

(NOTE: If these have not been completed prior to the test, ask the instructor when the above activities should be completed.)

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT V

ANSWERS TO TEST

1. a. 2
   b. 13
   c. 3
   d. 10
   e. 7
   f. 5
   g. 1
   h. 14
   i. 9
   j. 4
   k. 6
   l. 12
   m. 11
   n. 8

2. a. Water

   b. Organic matter

   c. Carbohydrates

   d. Crude fiber

   e. Starch

3. a. Cost per pound of TDN

   b. Cost per pound of protein

   c. Cost per pound of feed

4. a. C.
   b. R
   c. C
   d. C
   e. R
   f. R
   g. C
   h. C

5. b, c, f
6. a. S
   b. C
   c. S
   d. S
   e. C
   f. C

7. Description should include:

   a. Weigh feed

   b. Dry in oven

   c. Weigh again

8.

		Parts	:/100#
Corn 7.0%		a. 26	d. 70
	18%		
SBM 44%		b. 11	e. 30
		c. 37	100#

9. Evaluated to the satisfaction of the instructor.

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

UNIT OBJECTIVE

After completion of this unit, the student should be able to determine health of an animal by observation, match temperatures of various animals to the correct animal, and develop an animal health plan for his/her own situation. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal health to the correct definitions.
2. Select from a list signs indicating good animal health.
3. List seven signs of poor animal health.
4. List the average temperatures of three species of companion animals.
5. List three factors that constitute a good disinfection program.
6. Matching the kinds of injections to the correct descriptions.
7. List four agencies that regulate animal health.
8. List five factors to consider when developing an animal health plan.
9. Develop a plan for maintaining animal health using livestock in the supervised experience program.
10. Demonstrate the ability to take the temperature of companion animals.

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI
SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and assignment sheets.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Discuss information and assignment sheets.

   F. Demonstrate and discuss procedures outlined in job sheets.

   G. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheet.

   C. Complete assignment sheet and turn into instructor.

   D. Apply a good animal health plan to your livestock program.

   E. Demonstrate the ability of accomplish the procedures outlined in the job sheet.

   F. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheets

   C. Transparency master: TM 1—Injection Points of the Horse

   D. Assignment Sheets

      1. Assignment Sheet #1—Develop an Animal Health Plan

      2. Assignment Sheet #2—Observe Health Conditions of Companion Animals

E. Job Sheet #1—Take Temperature of Companion Animals

F. Test

G. Answers to test

II. References

A. Ensminger, M. E. *Animal Science.* Danville, Illinois: The Interstate Printers and Publishers, 1965.

B. *The Stockman's Handbook.* Danville, Illinois: The Interstate Printers and Publishers, 1976.

C. Bundy, Clarence E., and Diggins, Ronald V. *Livestock and Poultry Production. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.*

D. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University, 1974.

E. *NASOC.* 901 Jonesville Avenue, Fort Atkinson, Wisconsin.

F. Whitney, Leon F., D.V.M., *The Complete Book of Cat Care.* Garden City, New York: Doubleday and Company Inc., 1953.

G. Whitney, Leon F., D.V.M., *The Complete Book of Dog Care.* Garden City, New York: Doubleday and Company Inc., 1953.

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

INFORMATION SHEET

I. Terms and definitions

   A. Vaccination—Injection of some agent into an animal for the purpose of preventing a disease

   B. Vaccine—Preparation containing live or killed microorganisms that are given to an animal to produce an immunity to a particular disease

   C. Disinfectant—Substance which destroys infective agents

   D. Antiseptic—Substance that checks the growth of microorganisms in or on living tissue

   E. Injection—Placing of a vaccine or antibiotic into an animal's body

   F. Blood serum—Watery portion of an animal's blood which will stop the action of an infectious agent

   G. Syringe—Instrument used to make injections, consisting of a plunger, a barrel, and various types and sizes of needles

II. Signs that indicate good health

   A. Content

   B. Alert

   C. Sleek coat

   D. Bright eyes and pink eye membrane

   E. Normal feces and urine

   F. Normal temperature

   G. Normal pulse rate

   H. Normal respiration

III. Signs that indicate poor health

   A. Loss of appetite

   B. Rough hair coat

INFORMATION SHEET

C. Abnormal feces

D. Dull eyes

E. High temperature

F. Discolored urine

G. Ruminants not chewing their cud

IV. Average temperatures of three species of companion animals

Species	Temperature Degree F Average	Pulse Rate Per Minute	Normal Breathing 1 minute rate per minute
Dog	104.5° F	90	20
Cat	101.5°	120	25
Horse	100.5°	32-44	8-16

V. Factors that constitute a good disinfection program

A. Cleanliness of area before applying disinfectant

B. Killing strength of disinfectant

C. Dilution at which disinfectant is used

D. Thoroughness of application

VI. Kinds of injections (Transparency 1)

A. Subcutaneous—Injection placed under the skin

B. Intravenous—Injection placed in a vein

(NOTE: This is generally used when fast action is desired.)

C. Intramuscular—Injection placed in the muscle

(NOTE: This injection is generally placed in the thigh or neck.)

D. Oral—Injection placed through the mouth into the stomach

E. Interperitioneal—Injection placed in the right side of the abdominal cavity

F. Udder Infusion—Injection placed in the udder

(NOTE: This injection is placed through the teat opening into the udder.)

INFORMATION SHEET

VII. Agencies that regulate animal health

   A. Animal disease eradication division

   B. State veterinarians

   C. State sanitary commissions

   D. State agricultural boards

VIII. Factors to consider when developing an animal health plan

   A. Proper housing

   B. Adequate ventilation

   C. Proper manure disposal

   D. Control of rodents and birds

   E. Use of disinfectants

   F. Proper isolation of new animals

   G. Proper carcass disposal

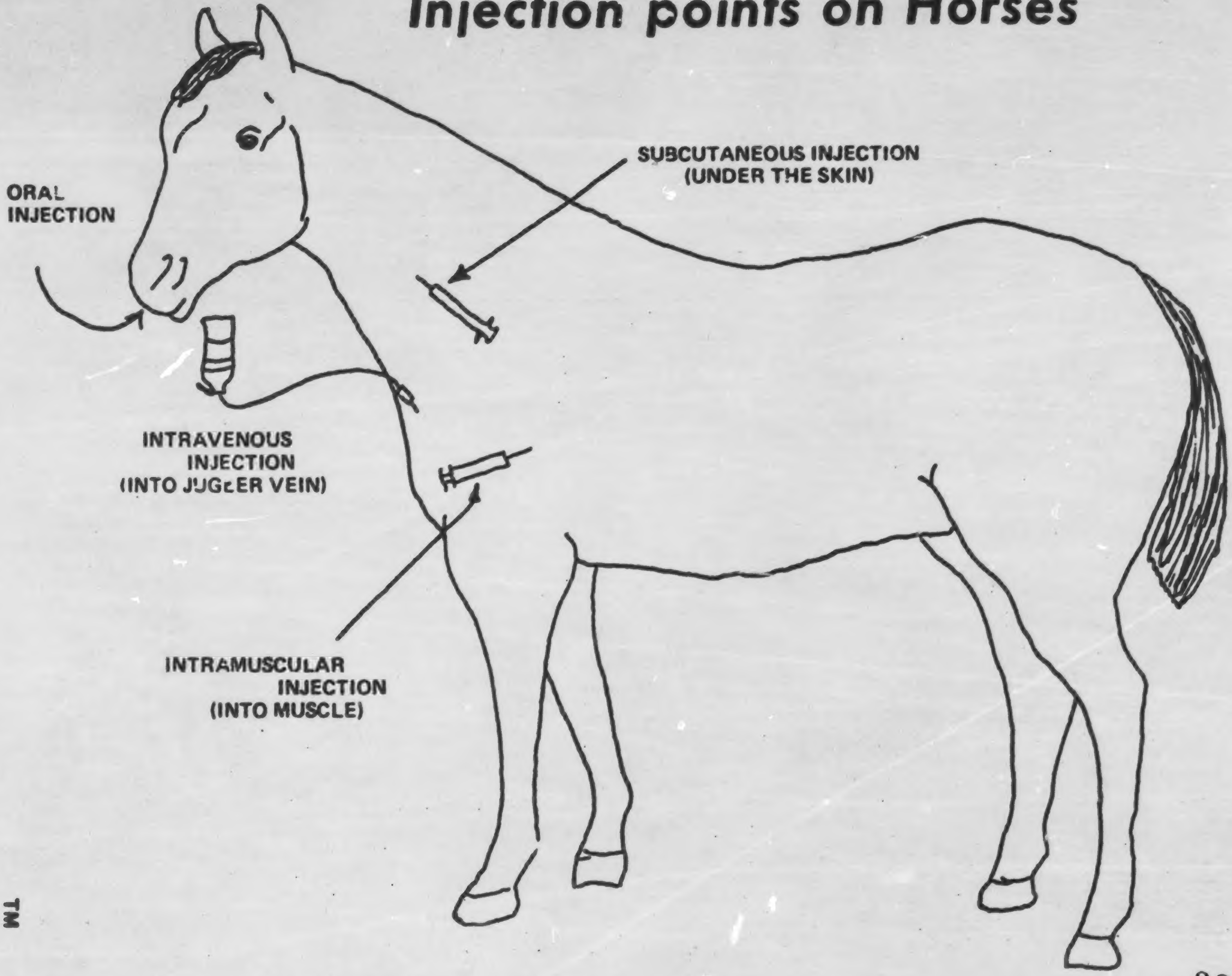
   H. Pasture rotation

   I. Vaccination

   J. Parasite control

   (NOTE: Others may be added by instructor.)

Injection points on Horses


ORAL INJECTION
SUBCUTANEOUS INJECTION (UNDER THE SKIN)
INTRAVENOUS INJECTION (INTO JUGLER VEIN)
INTRAMUSCULAR INJECTION (INTO MUSCLE)

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

ASSIGNMENT SHEET #1—DEVELOPE AN ANIMAL HEALTH PLAN

Using livestock in your supervised experience program, develop a plan for maintaining animal health. Factors on the information sheet may be used as a guide. Complete and turn into the instructor for evaluation.

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

ASSIGNMENT SHEET #2—OBSERVE CONDITIONS OF COMPANION ANIMALS

Using dogs, cats, or horses in class laboratory, complete the below chart. Information on the information sheet may be used as a guide. Complete and turn in to the instructor for evaluation.

	DOG		CAT		HORSE	
	1	2	1	2	1	2
Eyes						
Hair/coat						
Temperature						
Pulse						
Respiration						

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

JOB SHEET #1—TAKE TEMPERATURE OF COMPANION ANIMALS

I. Equipment

  A. Clinical thermometer

  B. Soap

  C. Disinfectant

II. Procedure

  A. Shake down thermometer

  B. Lubricate with oil or soap

  C. Insert in rectum along lining of the bowl

  D. Allow 2-3 minutes for temperature to be obtained

  E. Remove thermometer and read

  F. Dip thermometer in disinfectant

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

TEST

1. Match the terms on the right with the correct definitions.

____ a. Substance which destroys infective agents

____ b. Placing of a vaccine or antibiotic into an animal's body

____ c. Instrument used to make injections, consisting of a plunger, a barrel, and various types and sizes of needles

____ d. Watery portion of an animal's blood which will stop the action of an infectious agent

____ e. Injection of some agent into an animal for the purpose of preventing a disease

____ f. Substances that checks the growth of microoganisms in or on living tissue

____ g. Preparation containing live or killed microorganism that are given to an animal to produce an immunity to a particular disease

1. Vaccination
2. Vaccine
3. Disinfectant
4. Antiseptic
5. Injection
6. Blood serum
7. Syringe

2. Select from the list below signs that indicate good animal health. Place an "X" in the correct blanks.

____a. Content

____b. Nervous

____c. Alert

____d. Bright eyes

____c. High temperature

____f. Rough coat

____g. Normal respiration

3. List seven signs of poor animal health.

a.

b.

c.

d.

e.

f.

g.

4. List the average temperatures of the three species of companion animals listed below.

a. Dog____°F b. Cat____°F c. Horse____°F

5. List three factors that constitute a good disinfection program.

a.

c.

b.

d.

6. Match the kinds of injections on the right to their correct descriptions.

____ a. Injection placed in the udder

____ b. Injection placed in the right side of abdominal cavity

____ c. Injection placed in the muscle

____ d. Injection placed in the vein

____ e. Injection placed under the skin

1. Subcutaneous
2. Intravenous
3. Intra muscular
4. Oral
5. Interperitional
6. Udder infusion

7. List four agencies that regulate animal health.

a.

c.

b.

d.

8. List five factors to consider when developing an animal health plan.

a.

b.

c.

d.

e.

9. Develop a plan for maintaining animal health using livestock in the supervised experience program.

10. Demonstrate the ability to take temperature of companion animals.

MAINTAINING COMPANION ANIMAL HEALTH
UNIT VI

ANSWERS TO TEST

1. a. 3
   b. 5
   c. 7
   d. 6
   e. 1
   f. 4
   g. 2
2. a, c, d, g
3. a. Loss of appetite
   b. Rough hair coat
   c. Dull eyes
   d. High temperature
   e. Discolored urine
   f. Ruminants not chewing their cud
   g. Abnormal feces
4. a. Dog—104.5°F b. Cat—101.5°F c. Horse—100.5°D
5. Any three of the following:
   a. Cleanliness of area before applying disinfectant
   b. Killing strength of disinfectant
   c. Dilution at which disinfectant is used
   d. Thoroughness of application

6. a. 6
   b. 5
   c. 3
   d. 2
   e. 1
   f. 4
7. a. Animal disease eradication division
   b. State veterinarians
   c. State sanitary commissions
   d. State agricultural boards

8. Any five of the following:
    - a. Proper housing
    - b. Adequate ventilation
    - c. Proper manure dispoal
    - d. Control of rodents and birds
    - e. Use of disinfectants
    - f. Proper isolation of new animals
    - g. Proper carcass disposal
    - h. Pasture rotation
    - i. Vaccination
    - j. Parasite control
9. Evaluated to the satisfaction of the instructor.
10. Performance skills evaluated to the satisfaction of the instructor.

COMPANION ANIMAL DISEASES
UNIT VII

UNIT OBJECTIVE

After completion of this unit, the student should be able to classify diseases as infectious, noninfectious, or nutritional, list ways brucellosis is spread, and name the disease when given the symptoms, species affected, treatment, and control. This knowledge will be evidenced by demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with companion animal diseases to the correct definitions.
2. Classify diseases as infectious, noninfectious, or nutritional.
3. Arrange in order the steps of a brucellosis eradication program.
4. Select from a list ways dogs, cats and horses may become infected with infectious disease.
5. Complete a chart on species affected, symptoms and treatment control of various diseases.
6. Demonstrate the ability to inject a syringe.

COMPANION ANIMAL DISEASES
UNIT VII

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information and job sheets.

  C. Make transparencies.

  D. Discuss unit and specific objectives.

  E. Discuss information sheet.

  F. Demonstrate and discuss procedures outlined in job sheets.

  G. Give test.

II. Students:

  A. Read objectives.

  B. Study information sheets.

  C. Demonstrate the ability to accomplish the procedures outlined in the job sheet.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit

  A. Objective sheet

  B. Information sheets

  C. Transparency masters

    1. TM 1—Nutritional Diseases

    2. TM 2—Steps to Brucellosis Eradication

  D. Job sheet #1—Inject Syringe

  E. Test

  F. Answers to test

II. References:

A. *Instructional Materials for Vocational Agriculture* 1. College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University, 1974.

B. Diggins, Ronald V., and Bundy, Clarence E. *Beef Production*. Englewood Cliff, New Jersey. Prentice-Hall, Inc.

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D. Dykstru, R. R. *Animal Sanitation and Disease Control.* Danville, Illinois: The Interstate Printers and Publishers, 1968.

E. Nichols, C. W., and Brook, W. E. *How to Use Anapolasmosis Vaccine*. Stillwater: Oklahoma State University, OSU Extension Facts, no. 3352, 1973.

F. Interview with Prof. Norman R. Underdahl, Veterinary Science Department, SPF Division, University of Nebraska–Lincoln, Lincoln, Nebraska, June 10, 1976.

G. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care*. Garden City, New York: Doubleday and Company Inc., 1953.

H. Whitney, Leon F., D.V.M. *The Complete Book of Dog Care*. Garden City, New York: Doubleday and Company Inc., 1953.

COMPANION ANIMAL DISEASES
UNIT VII
INFORMATION SHEET

I. Terms and definitions

A. Disease—Any departure from the normal state of the living animal that effects the performance of the vital functions

B. Pathogen—Disease-producing organism

C. Infection—Entry and development of a pathogen in or on the animal body

D. Infectious disease—Disease of human or animal resulting in an infection

E. Noninfectious disease—Disease of human or animal not due to an infection but resulting from physical or chemical agents or metabolic derangement

F. Incidence of disease—Total number of cases of a disease at a particular time

G. Prevalence of disease—Number of cases of a disease occurring during a prescribed time interval

H. Symptom—Any observable sign or evidence of disease

I. Incubation period—Period of time between the exposure to a disease agent and the appearance of the first symptom or sign of the disease

J. Carrier of disease—Animal which harbors in its body the specific organism of a disease without showing symptoms

K. Vehicle of disease—Medium by which a disease agent may be spread

L. Fetus—Unborn offspring of an animal in the later stages of development

M. Abortion—Expulsion of a dead or immature fetus

II. Disease classifications

A. Infectious

1. Brucellosis (Bangs)
2. Vibriosis
3. Anaplasmosis
4. Pneumonia
5. Mastitis
6. Warts

INFORMATION SHEET

7. Tuberculosis

8. Equine encephalomyelitis (sleeping sickness)

9. Pseudorabies

10. Distemper

11. Equine infectious anemia (swamp fever)

B. Non Infectious

1. Bloat

2. Cancer eye

C. Nutritional (Transparency 1)

1. Anemia

2. Founder

3. Rickets

4. Ketosis

5. Heaves

6. Colic

III. Steps of a brucellosis eradication program (Transparency 2)

A. Test all female dogs, cats, and horses

B. Remove all unvaccinated reactors

C. Vaccinate replacement animals

D. Retest at regular intervals

E. Isolate all new animals purchased

F. Test all new animals before placing with others

IV. Ways dogs may become infected with brucellosis

A. Purchased animal may be infected

B. Contact with infected animals in kennels

C. Pens and cages

INFORMATION SHEET

D. Public auction

E. Exposure at livestock shows

F. Aborted young not disposed of properly

INFORMATION SHEET

V. Symptoms and treatment/control of diseases

DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT/CONTROL
Pneumonia	Horses Cats Dogs	High fever, quick shallow breathing, loss of appetite, crackling noise with discharge from nostrils	Isolate sick animals, practice good sound husbandry, use sulfa drugs and antibiotics
Mastitis	Horses Dogs Cats	Acute udder becomes hot, very hard, and tender; increase in temperature; milk flow reduced and watery	Eliminate source of udder injury, provide clean bedding, use antibiotics
Warts	Dogs	Growths on the skin, generally very small	Isolate dogs, clean and disinfect pens, vaccinate dogs to remove warts
Bloat	Dogs	Enlarged paunch noticeable on left side; found mainly in great danes, St. Bernards, and blood hounds	Keep animals on feet and moving, use stomach pump, feed dry roughage or feed
Anemia	Cats	Loss of appetite, inefficient gains, death	Provide adequate amounts of nutrients, antibiotics, iron, and vitamin B
Founder	Horses	Extreme pain, high fever, dropping of hoof soles, turning up of toe walls	Avoid overfeeding of the animal, severe cases should be destroyed, vaccinate affected animals early
Rickets	Dogs Horses Cats	Enlargment of the knee and hock joints bowed legs	Provide sufficient calcium, phosphorous, and vitamin D
Pseudorabies	Cats Dogs	Abortion, cough, stillbirth, sleepy, pneumonia, brain damage, death to young, scratching and itching	No effective control, immune after infection

INFORMATION SHEET

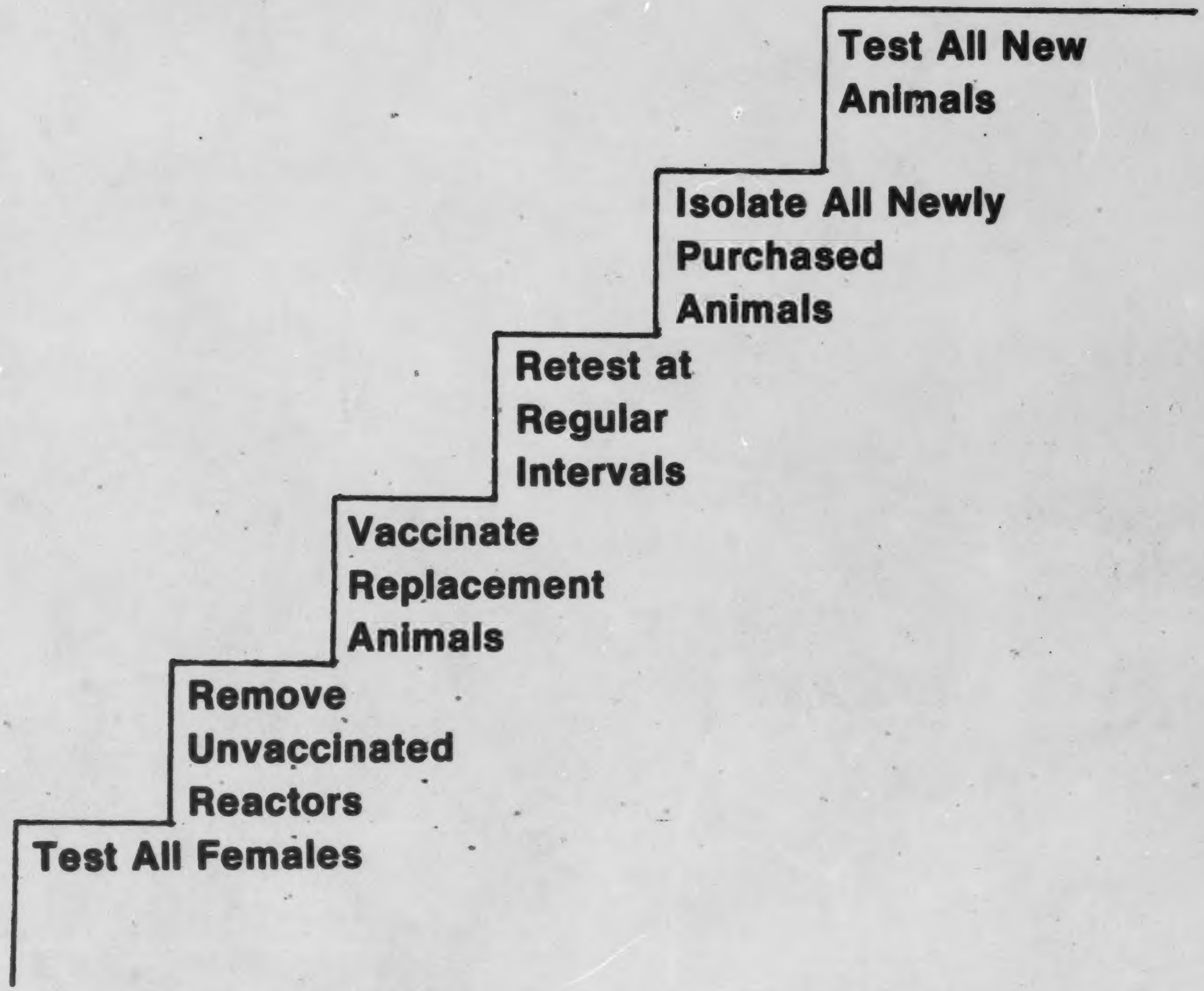
DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT
Rabies	Dogs Cats Horses	Sweat roll, groan, strain, stretch, or turn head around to flank area	Mineral oil; antiferments, pain killers and tranquilizers; feed high quality feed in proper amounts, avoid over and under exercise of animal; vaccination
Brucellosis	Dogs	Abortion, loss of appetite, feverish, heavy breather, bloody urine, pups may be born but are weak and death may occur	Perform blood test, vaccinate all animals, isolate new animals
Cancer eye	Dogs Cats	Watering and squintering of eyelid, severe reddening of membrane	Early diagnosis, followed by surgery
Vaginitis	Cats	Tissue of vagina, rough and granular in appearance, licking of the vulva	Application of cortisone cream
Equine Encephalomyelitis	Horses	Sleepy appearance, blind appearance, possible paralysis	Vaccine administered prior to mosquito season
Distemper	Horses Cats Dogs	Loss of appetite, depression, high fever, pus discharged from nose, enlarged jaw gland, open discharge of pus	Consult with a vet; antibiotics and sulfur

NUTRITIONAL DISEASES

1. ANEMIA
2. FOUNDER
3. RICKETS
4. KETOSIS
5. HEAVES
6. COLIC

CA-161-B

STEPS TO BRUCELLOSIS ERADICATION



Test All New Animals

Isolate All Newly Purchased Animals

Retest at Regular Intervals

Vaccinate Replacement Animals

Remove Unvaccinated Reactors

Test All Females

TM 2

COMPANION ANIMAL DISEASES
UNIT VII

JOB SHEET #1—INJECT SYRINGE

I. Equipment

  A. Grapefruit, white

  B. Syringe

  C. Variety of needle sizes

  D. Colored water in plastic top drug bottle

II. Procedure

  A. Select syringe needle and attach to syringe

  B. Fill syringe with colored water

  C. Inject water into grapefruit

  D. Cut grapefruit in half, observing how liquid was injected

COMPANION ANIMAL DISEASES
UNIT VII
TEST

1. Match terms on the right to the correct definitions.

____ a. Entry and development of a pathogen in or on the animal body

____ b. Any departure from the normal state of the living animal that effects the performance of tne vital functions

____ c. Total number of cases of a disease at a particular time

____ d. Disease of human or animal resulting in an infection

____ e. Unborn offspring of an animal in the later stages of development

____ f. Expulsion of a dead or immature fetus

____ g. Number of cases of a disease occurring during a prescribed time interval

____ h. Disease of human or animal not due to an infection but resulting from physical or chemical agents or metabolic derangement

____ i. Period of time between the exposure to a disease agent and the appearance of the first symptom or sign of the disease

____ j. Animal which harbors in its body the specific organism of a disease without showing symptoms

____ k. Unbalanced of vital organs in the animal body

____ l. Disease-producing organism

____ m. Medium by which a disease agent may be spread

____ n. Any observable sign or evidence of disease

1. Disease
2. Fetus
3. Pathogen
4. Abortion
5. Infectious disease
6. Vehicle of disease
7. Infection
8. Carrier of disease
9. Metabolic derangement
10. Incubation period
11. Noninfectious disease
12. Symptom
13. Incidence of disease
14. Prevalence of disease

2. Classify the following diseases as infectious, noninfectious, or nutritional by placing an "I" in front of infectious, an "NI" in front of noninfectious, and an "N" in front of nutritional disease.

____a. Anemia

____b. Pseudorabies

____c. Bloat

____d. Pneumonia

____e. Warts

____f. Vibriosis

____g. Tuberculosis

____h. Equine encephalomyelitis (sleeping sickness)

____i. Cancer eye

____j. Distemper

____k. Rickets

____l. Ketosis

____m. Brucellosis (bangs)

____n. Equine infectious anemia

3. Arrange in order the steps of a brucellosis eradication program.

____ a. Isolate all new animals before placing with others

____ b. Remove all unvaccinated reactors

____ c. Retest at regular intervals

____ d. Vaccinate replacement animals

____ e. Test all female dogs, cats, and horses

____ f. Test all new animals before placing with others

4. Select from the list below ways dogs may become infected with brucellosis by placing an "X" in the blanks.

____ a. Contact with infected animals

____ b. Eating feed low in minerals

____ c. Exposure at livestock shows

____ d. Exposure to weather

____ e. Aborted puppies not disposed of properly

5. Complete the following chart by writing the correct information in the blanks.

DESEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT
a.____	Dogs	Abortion, loss of appetite, feverish, heavy breathing, bloody urine, pups may be born but are weak and death may occur	Perform blood test, vaccinate all animals, isolate new animals
Pseudo-rabies	Cats Dogs	b.____________	No effective control, immune after infection
c.____	Horses Cats Dogs	High fever, quick shallow breathing, loss of appetite, crackling noise with discharge from nostrils	Isolate sick animals, practice good sound husbandry, use sulfa drugs and antibiotics
Equine encephalomyelitis	d.____	Sleepy appearance, blind appearance, possible paralysis	Vaccine administered prior to mosquito season
Rabies	Horses Cats Dogs	Sweat roll, grown, strain, stretch, or turn the head around to flank area	e.____________ ____________ ____________
f.____	Horses Cats Dogs	Loss of appetite, depression, high fever, pus discharged from nose, enlarged jaw gland, open discharge of pus	Consult with a vet; antibotics and sulfur

6. Demonstrate the ability to inject syringe.

COMPANION ANIMAL DISEASES
UNIT VII
ANSWERS TO TEST

1. a. 7
   b. 1
   c. 13
   d. 5
   e. 2
   f. 4
   g. 14
   h. 11
   i. 10
   j. 8
   k. 9
   l. 3
   m. 6
   n. 12

2. a. N
   b. I
   c. NI
   d. I
   e. I
   f. I
   g. I
   h. I
   i. NI
   j. I
   k. N
   l. N
   m. I
   n. I

3. a. 5
   b. 2
   c. 4
   d. 3
   e. 1
   f. 6

4. a, c, e

5. a. Brucellosis
   b. Abortion, cough, stillbirth, sleepy, pneumonia, brain damage, death to young, or scratching and itching
   c. Pneumonia
   d. Horses
   e. Prevent by vaccination
   f. Distemper

6. Performance skill evaluated to satisfaction of instructor.

COMPANION ANIMAL PARASITES
UNIT VIII

UNIT OBJECTIVE

After completion of this unit, the student should be able to classify parasites as internal or external. The student should be able to reproduce the life cycles of parasites and name the parasites when given the animals affected, symptom, prevention, and control. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with companion animal parasites to the correct definitions.
2. List three general measures in preventing internal and external parasites.
3. Classify parasites as internal or external.
4. Identify seven external parasites when given a drawing.
5. Arrange in order the steps in the life cycle of an internal parasite and an external parasite.
6. Complete a chart on species affected, symptoms, and prevention and control of parasites.

COMPANION ANIMAL PARASITES
UNIT VIII
SUGGESTED ACTIVITIES

I. Instructor:

A. Provide students with objective sheet.

B. Provide students with information sheet.

C. Make transparencies.

D. Discuss unit and specific objectives.

E. Discuss information sheets.

F. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Observe companion animal for external parasites.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objective sheet

B. Information sheets

C. Transparency masters

1. TM 1—External Parasites

2. TM 2—Life Cycle of the Horn Fly

3. TM 3—Life Cycle of Heartworm

4. TM 4—Life Cycle of Roundworm

D. Test

E. Answers to test

II. References:

A. Wagnon, Kenneth A.; Albaughand, Ruben; Hart, George H. *Beef Cattle Production*. New York: The Macmillan Company, 1965.

B. Ensminger, M. E. *The Stockman's Handbook*. Danville Illinois: The Interstate Printers and Publishers, Inc., 1968.

C. Carlile, Robert B. *Veterinary Guide for Animal Owners*. Columbia, Missouri; Printing Laboratory, 1972

D. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care*. Garden City, New York: Doubleday and Company Inc., 1953.

E. Whitney, Leon F., D.V.M. *The Complete Book of Dog Care*. Garden City, New York: Doubleday and Company Inc., 1953.

COMPANION ANIMAL PARASITES
UNIT VIII

INFORMATION SHEET

I. Terms and definitions

A. Parasite—Organism that lives in or on another animal and obtains its food from its host

B. Life cycle—Series of changes through which an organism passes during its life

C. Metamorphosis—Change in the form or structure of an animal occurring after birth or hatching

D. External parasite—Organism that lives on or under the skin of an animal

E. Internal parasite—Organism that lives part of its life cycle inside the animal body

F. Blowfly—Fly that breeds in necrotic (dead) animal flesh

G. Screw worm fly—Fly that raises its maggots in the open wound of animals and feeds on live flesh

H. Hornfly—Small black fly often seen resting around the base of the horn; sucks blood from the back, neck, and shoulders

I. Grub—Maggot (larva) stage of a honeybee-like insect known as a heel fly

J. Ringworm—Contagious fungus growth on the outer layer of the skin

K. Lice—Small, flattened, wingless parasites

L. Anaplasmosis—Serious blood disease of dogs transmitted by insect bites

M. Horsefly—Large gray fly generally around bushy or wooded areas

N. Coccidiosis—Parasitic disease caused by protozoan organisms known as coccidia

O. Intestinal worm—Long worm found in the stomach, small intestine, and colon

P. Lungworm—White threadlike worm 1½" to 3", long found in the trachea and bronchi

INFORMATION SHEET

Q. Ascarid—Yellowish or pinkish worm 8" to 15" long; almost the size of a lead pencil

R. Tick—Blood-feeding parasite known to transmit some disease-bearing organism from one animal to another

S. Heartworm—Lives inside the heart, carried by flies and mosquitoes

II. Measures for preventing internal and external parasites

A. Internal

1. Practice pasture rotation
2. Check animals regularly
3. Treat animals showing signs of parasites
4. Practice proper lot or kennel sanitation
5. Drain wet pasture sites
6. Keep young animals in clean pastures and kennels

B. External

1. Keep manure cleaned from stable and kennels to prevent fly breeding
2. Spray animals regularly
3. Spray animals' housing
4. Spray new animals on the grounds
5. Check animals frequently

III. Internal and external parasites

A. Internal

1. Coccidiosis
2. Tapeworm
3. Roundworm
4. Hookworm
5. Whipworm
6. Heartworm
7. Stomachworm

INFORMATION SHEET

8. Ascarids

9. Horse bots

10. Pinworms

11. Large blood or palisade worm

B. External

1. Lice

2. Fleas

3. Mange

4. Tick

5. Horsefly

6. Hornfly

7. Mosquito

8. Blowfly

IV. External parasites (Transparency 1)

A. Mite

B. Lice

C. Tick

D. Hornfly

E. Barnfly

F. Heelfly

G. Screwworm fly

V. Life cycles of parasites

A. Horn fly (Transparency 2)

1. Egg

2. Larva

3. Adult

B. Dog Heartworm (Transparency 3)

1. Mosquito bites animal ingesting microfilaria

INFORMATION SHEET

2. Larva develops
3. Larva passes to mosquito
4. Mosquito bites dogs
5. Adult heartworm found in heart

C. Cat intestinal roundworm (Transparency 4)

1. Egg eaten by cat
2. Egg hatches to worm
3. Adult worm in small intestine
4. Eggs are passed in feces

VI. Symptoms. prevention, and control of parasites

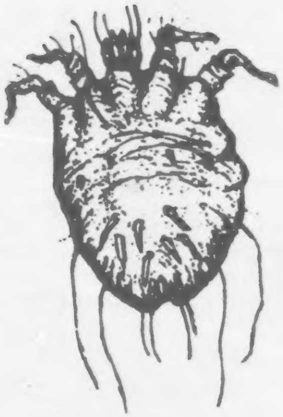
A. External	Species Affected	Symptoms	Prevention and Control
Lice	Cat, dog, horse	Irritation, restlessness, and loss of condition; anemia; scratching	Spray or dust with recommended insecticide
Fleas	Cat, dog	Scratching and severe discomfort	Use flea collars and spray bedding areas
Mites, scabies, mange	Cat	Skin irritated; itching and scratching; crusted condition	Spraying and dipping; use lime-sulfur or other recommended insecticide
Ticks	Cat, dog horse	Irritation of animal; reduced milk flow	Swab with cotton dipped in alcohol or choloroform or use recommended insecticide

B. Internal	Species Affected	Symptoms	Prevention and Control
Coccidiosis	Cat	Nervous, restless, irritable, unthrifty	Keep quarters clean and free of fleas
Roundworm	Cat, dog	Loss of weight, anemia, and/or diarrhea, unthrifty	Keep animals in clean area, treat with recommended wormers following directions carefully

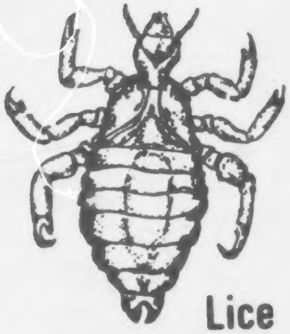
Disease	Species Affected	Symptoms	Prevention and Control
Hookworm	Cat, dog	Anemia, diarrhea, fits	Practice good sanitation, administer recommended wormers following directions carefully
Whipworms	Cat, dog	Alternating soft and firm stools	Keep quarters very clean; remove all feces regularly
Blowfly	Horse	Infected wounds; soiled hair or fleece; animals become weak and fevered	Use proper procedure for destroying dead animals; use traps, poisoned baits, and repellents; clean wounds and apply proper medicants
Mosquito	Horse	Weight loss under persistant attack; force out river pastures	Use of insecticides; drain stagnant water ponds
Hornfly	Horse	Horses refuse to graze; seek protection by hiding in buildings, brush, or tall grass; severe harassing and discomfort	Remove manure from around barn; spray animals frequently from early may until frost; Use insecticide
Heartworm	Dog, cat	Badly infected shortness of breath, coughing, animal tires easily	Carried by mosquito; prevent by oral dosage; if animal is suspected, consult a veterinarian
Stomach worm	Horse	Unthriftiness, skin disease	

Disease	Species Affected	Symptoms	Prevention and Control
Ascarids	Horse	Coughing and hard breathing, unthriftiness	Practice strict sanitation; use recommended wormers
Horse bots	Horse	Severe irritation to gum, tongues, or lips; rub lips violently	Feed administered by stomach tube
Pinworms	Horse	Unusual rubbing of tail and surrounding area	Administer recommended wormer
Large blood or palisade worm	Horse	Lack of appetite, anemia, lameness, restriction of blood flow in arteries	Administer recommended wormer

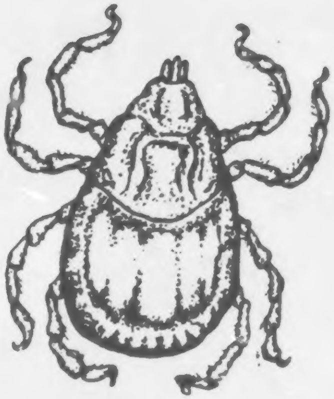
External Parasites



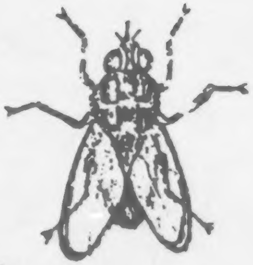
Mite



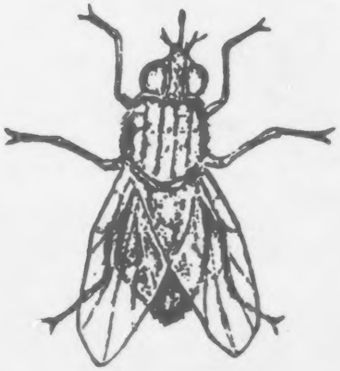
Lice



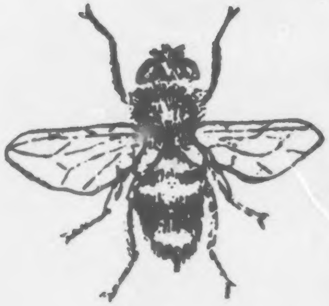
Tick



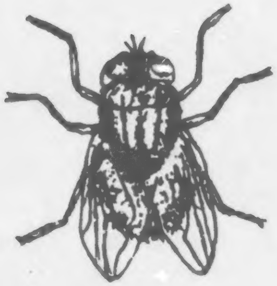
Horn Fly



Barn Fly



Heel Fly

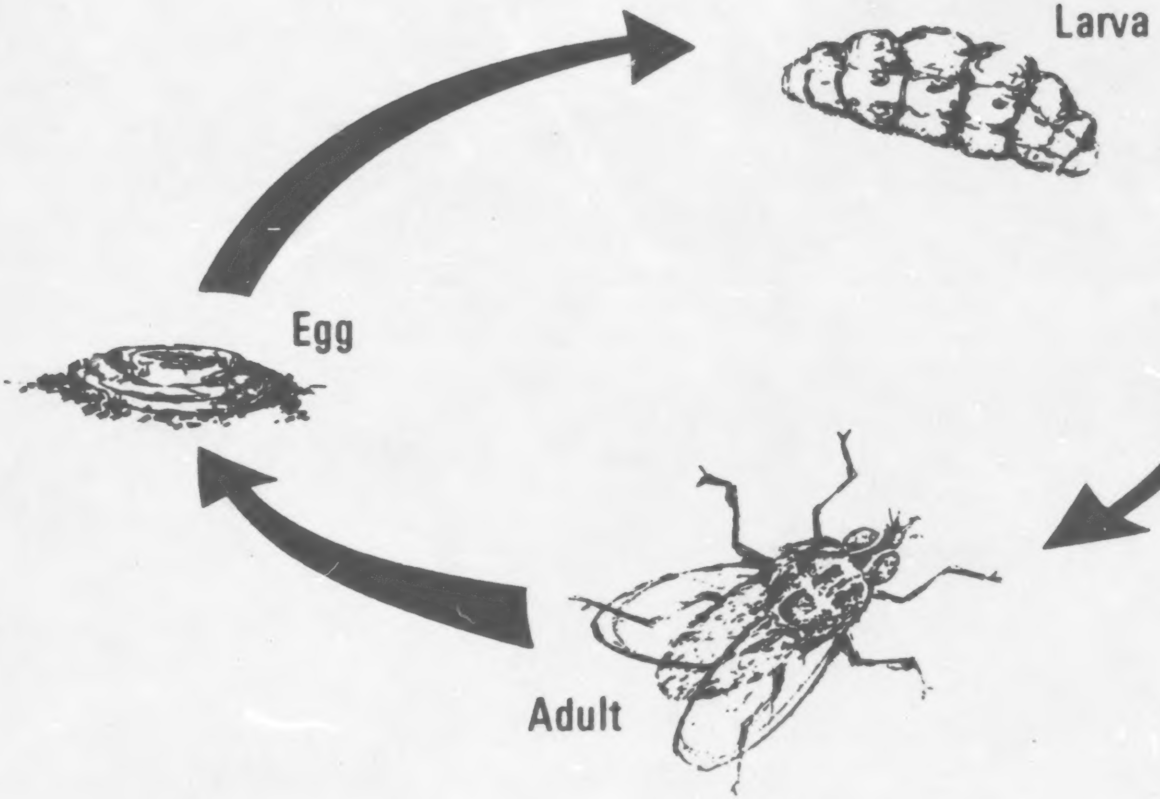


Screwworm Fly

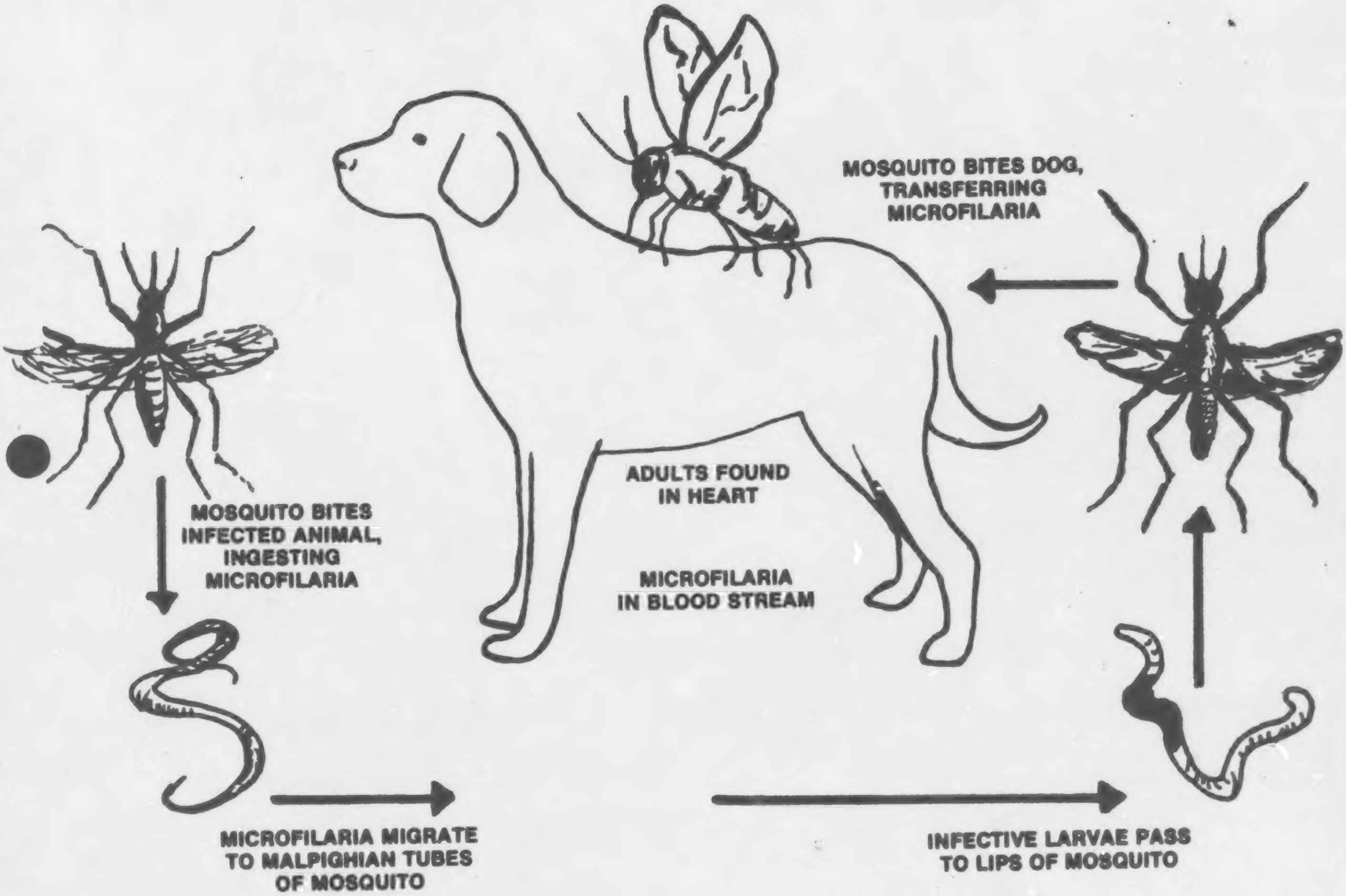
TM 1

CA-185-B

Life Cycle of the Horn Fly

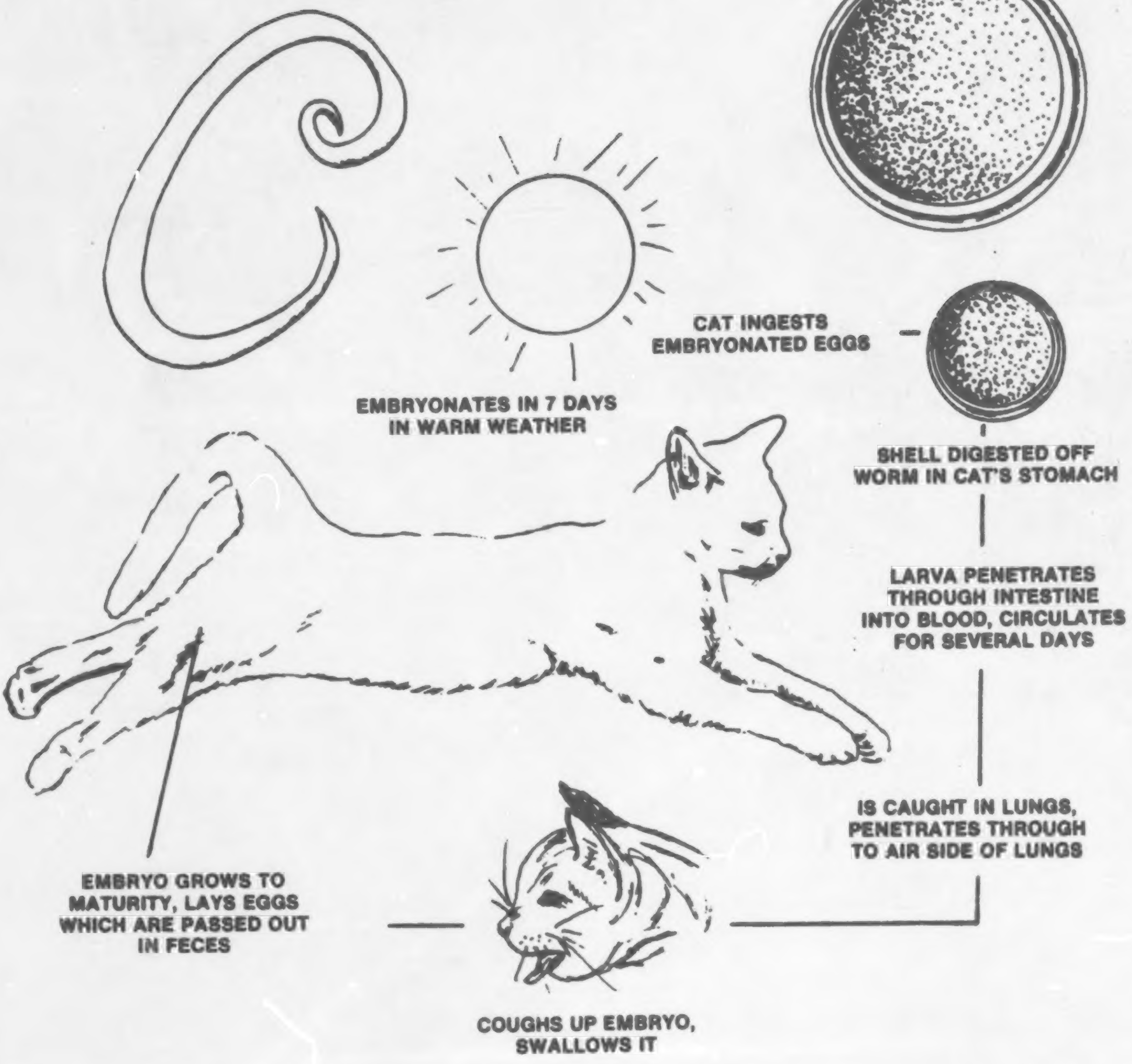

Larva
Egg
Adult

LIFE CYCLE OF HEARTWORM


MOSQUITO BITES DOG, TRANSFERRING MICROFILARIA
MOSQUITO BITES INFECTED ANIMAL, INGESTING MICROFILARIA
ADULTS FOUND IN HEART
MICROFILARIA IN BLOOD STREAM
MICROFILARIA MIGRATE TO MALPIGHIAN TUBES OF MOSQUITO
INFECTIVE LARVAE PASS TO LIPS OF MOSQUITO

DEVELOPMENT IN ONE MONTH

LIFE CYCLE OF ROUNDWORM


EMBRYONATES IN 7 DAYS
IN WARM WEATHER
CAT INGESTS
EMBRYONATED EGGS
SHELL DIGESTED OFF
WORM IN CAT'S STOMACH
LARVA PENETRATES
THROUGH INTESTINE
INTO BLOOD, CIRCULATES
FOR SEVERAL DAYS
IS CAUGHT IN LUNGS,
PENETRATES THROUGH
TO AIR SIDE OF LUNGS
COUGHS UP EMBRYO,
SWALLOWS IT
EMBRYO GROWS TO
MATURITY, LAYS EGGS
WHICH ARE PASSED OUT
IN FECES

CA-193-B

COMPANION ANIMAL PARASITES
UNIT XVIII

TEST

1. Match the terms on the right to the correct definitions.

____ a. Blood-feeding parasite know to transmit some disease-bearing organisms from one animal to another

____ b. Organism that lives in or on another animal and obtains its food from its host

____ c. Series of changes through which an organism passes during its life

____ d. White threadlike worm 1½" to 3" long found in the trachea and bronchi

____ e. Large gray fly generally found around bushy or wooded areas

____ f. Contagious fungus growth on the outer layer of the skin

____ g. Small, flattened, wingless parasites

____ h. Organism that lives on or under the skin of an animal

____ i. Parasitic disease caused by protozoan organisms known as coccidia

____ j. Yellowish or pinkish worms 8" to 15" long; almost the size of a lead pencil

____ k. Long worm found in the stomach, small intestine, and colon

____ l. Change in the form or structure of an animal occurring after birth or hatching

____ m. Fly that breeds in necrotic (dead) animal flesh

____ n. Maggot stage of a honeybee-like insect known as a heel fly

1. Tick
2. Lice
3. Life cycle
4. Ringworm
5. Parasite
6. Horsefly
7. Ascarid
8. Coccidiosis
9. Lungworm
10. External parasite
11. Internal parasite
12. Blow fly
13. Screw worm fly
14. Hornfly
15. Grub
16. Anaplaso mosis
17. Intestinal worm
18. Metamorphis
19. Heartworm

____ o. Serious blood disease of dogs transmitted by insect bites

____ p. Small black fly often seen resting around the base of the horn; sucks blood from the back, neck, and shoulders

____ q. Fly that raises its maggots in the open wound of animals and feeds in live flesh

____ r. Organism that lives part of its life cycle inside the animal body

____ s. Lives inside the heart; carried by flies and mosquitoes

2. List three measures to prevent internal and external parasites.

a.

b.

c.

3. Classify the following parasites as internal ("I") or external ("E") by writing the correct letter in the blanks provided.

____a. Coccidiosis

____b. Lice

____c. Fleas

____d. Horse bots

____e. Roundworm

____f. Mosquito

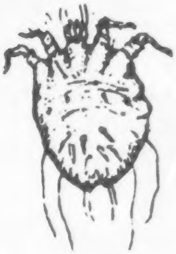
____g. Tick

____h. Whipworm

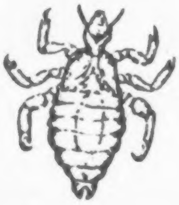
____i. Ascarids

____j. Hornfly

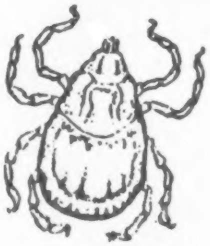
4. Identify the seven parasites below by writing the correct names in the blanks provided.



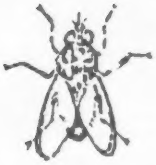
a. ____



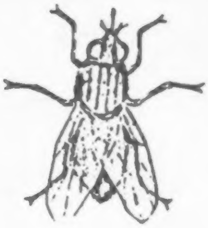
b. ____



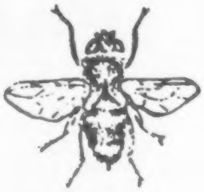
c. ____



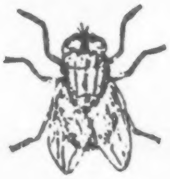
d. ____



e. ____



f. ____



g. ____

5. Arrange in order the steps in the life cycle of the parasites given below.

	Horse fly		Cat intestinal roundworm
___a.	Larva	___a.	Eggs are passed in feces
___b.	Adult	___b.	Egg hatches to worm
___c.	Egg	___c.	Eggs eaten by cat
		___d.	Adult worm in small intestine

6. Complete the following chart on species affected symptoms, and prevention, and control of parasites. Write the correct information in the blanks provided.

Parasite	Species Affected	Symptoms	Prevention Control
Lice	a. ________ ________ ________	Irritation, restlessness, and loss of condition, anemia; scratching	Spray or dust with recommended insecticide
b. ______	Horses	Coughing and hard breathing, unthriftiness	Practice strict sanitation; use recommended wormer
Ticks	Dog, cat, horse	Irritation of animal; reduced milk flow	c. ________ ________ ________
Roundworm	Cat, dog	Loss of weight, anemia and/or diarrhea, unthrifty	d. ________ ________ ________

COMPANION ANIMAL PARASITES
UNIT VIII
ANSWERS TO TEST

1. a. 1
   b. 5
   c. 3
   d. 9
   e. 6
   f. 4
   g. 2
   h. 10
   i. 8
   j. 7
   k. 17
   l. 18
   m. 12
   n. 15
   o. 16
   p. 14
   q. 13
   r. 11
   s. 19

2. Any of three of the following:

   a. Internal

      1) Practice pasture rotation

      2) Check animals regularity

      3) Treat animals showing signs of parasites

      4) Practice proper lot or kennel sanitation

      5) Drain wet pasture sites

      6) Keep young animals in clean pastures and kennels

   b. External

      1) Keep manure cleaned from stable and kennels to prevent fly breeding

      2) Spray animals regularly

      3) Spray animals' housing

      4) Spray new animals arriving on the grounds

      5) Check animals frequently

3. a. I
   b. E
   c. E
   d. I
   e. I
   f. E
   g. E
   h. I
   i. I
   j. E

4. a. Mite
   b. Lice
   c. Tick
   d. Horn fly
   e. Barn fly
   f. Heel fly
   g. Screw worm fly

5.

Horse fly	Cat round worms
a. 2	a. 4
b. 3	b. 2
c. 1	c. 1
	d. 3

6. a) Cat, dog, horse
   b) Ascarids
   c) Swab with cotton dipped in alcohol or choloroform or use recommended insecticide
   d) Keep animals in clean area, treat with recommended wormers following directions carefully

COMPANION ANIMAL REPRODUCTION
UNIT IX

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify the parts of the male and female reproductive systems of companion animals, distinguish between the advantages and disadvantages of artificial insemination, and describe stages of parturition. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal health to the correct definitions.
2. Identify five parts of the male genital system.
3. Identify five parts of the female genital system.
4. Identify five tools used in artificial insemination.
5. Distinguish between the advantages and disadvantages of artifical insemination.
6. List five signs of estrus.
7. List four factors to increase percentage of foals.
8. List five mating considerations.
9. Distinguish between the three breeding methods.
10. Complete a time cycle for one companion animal.
11. Describe three stages of parturation.
12. Arrange in order the six steps of one abnormal birth.

COMPANION ANIMAL REPRODUCTION
UNIT IX
SUGGESTED ACTIVITIES

I. Instructor:

- A. Provide student with objective sheet.
- B. Provide student with information and assignment sheets.
- C. Make transparencies.
- D. Discuss unit and specific objectives.
- E. Discuss information and assignment sheets.
- F. Give test.

II. Student

- A. Read objectives.
- B. Read information sheets.
- C. Complete assignment sheets and turn in to instructor.
- D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

- A. Objective sheet
- B. Information sheets
- C. Transparency masters
    1. TM 1—Genital System of Male Cat
    2. TM 2—Genital System of Female Dog
    3. TM 3—Tools Used in Inseminating
    4. TM 4—Factors Increasing Percentage of Foaling
- D. Assignment sheets
    1. Assignment Sheet #1—Calculate Date of Paturition
    2. Assignment Sheet #2—Identify Reproductive Organs of Male Cat
    3. Assignment Sheet #3—Identify Reproductive Organs of Female Dog

E. Answers to Assignment sheets

F. Test

G. Answers to test

II. References:

A. Carlile, Robert B. *Veterinarian Assistant*. Columbia, Missouri: Instructional Materials Laboratory, 1975.

B. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care*. Garden City, New York: Doubleday and Company, Inc., 1953.

C. Whitney, Leon F., D.V.M. *The Complete Book of Dog Care*. Garden City, New York: Doubleday and Company, Inc., 1953.

COMPANION ANIMAL REPRODUCTION
UNIT IX

INFORMATION SHEET

I. Term and definitions

   A. Estrus (oestrus)—Period during which sexual receptivity of the female to courtship and copulation is evident; commonly called "heat"

   B. Anestrus—Period of sexual quiescence between two periods of sexual acitivity in cyclically breeding animals

   C. Copulation—Sexual union of male and female; intercourse

   D. Abortion—That which is imperfectly formed or developed; fails to reach maturation

   E. Embryo—Organism in the earlier stages of development in prenatal life

   F. Fetus—Unborn offspring in later stages of development in prenatal life

   G. Gene—Ultimate unit of inheritance; carried by the chromosomes and transmitted in the germ cells

   H. Gestation—Pregnancy; carrying of product of conception within the uterus from fertilization to delivery

   I. Gonad—Primary sex gland; ovary or testis

   J. Heredity—Genetic transmission of the physical and mental characteristics of parents to their offspring

   K. Parturition—Act or process of giving birth to young

   L. Nymphomania—Uncontrollable sexual desire in animals

   M. Pseudocyesis—False pregnancy

   N. Caesarian section—Birth by surgery

   O. Bitch—Female dog

   P. Breech birth—Hind legs come first during parturition

II. Male genital system (Transparency 1)

   A. Ureters

   B. Bladder

INFORMATION SHEET

C. Urethra

D. Deferent ducts

E. Glands covered by papillae

F. Testis

G. Epididymis

H. Bulbo-urethral glands

I. Prostate

J. Penis (not pictured)

K. Sheath (not pictured)

III. Female genital system (Transparency 2)

A. Ovary

B. Uterine tube

C. Uterine horn

D. Bladder

E. Urethra

F. Vestibule

G. Vulva

H. Vagina

I. Cervix (cutaway)

J. Kidneys

K. Clitoris (not pictured)

IV. Tools used in artificial insemination (Transparency 3)

A. Nitrogen chest

B. Thaw box

C. Inseminating tubes

D. Disposable gloves

E. Polybulbs

INFORMATION SHEET

V. Artificial insemination

- A. Advantages
  1. Reduction in cost of keeping a stud
  2. Improvement of foals
  3. Prevention of disease
  4. Regulation of birth time
  5. Wider selection of studs
- B. Disadvantages
  1. Lower conception rate than natural service
  2. Closer supervision of female required
  3. More equipment needed

VI. Signs of estrus

- A. Relaxation of external genitals
- B. Frequent urination
- C. Teasing other animals
- D. Desire for company
- E. Slight mucous discharge

VII. Factors to increase percentage of foals (Transparency 4)

- A. Breed late spring
- B. Breed 3 and 4 year old
- C. Disinfect infections and unhealthy conditions
- D. Breed at proper time
- E. Feed and care properly

VIII. Mating considerations

- A. Take female to male animal
- B. If female is to be away longer than 5 to 6 hours, take young along
- C. Check quarantine periods and health requirements
- D. Allow female to become quiet and comfortable

INFORMATION SHEET

E. If excited, cool before breeding

F. Make sure female is in estrus

G. Wash mare's reproductive organs and bandage tail

H. Use twitch and hobbles on mare before breeding; muzzle bitch before breeding

I. Keep stallion under control

J. Don't breed on first heat cycle

IX. Breeding methods

A. Hand breeding

1. Best way
2. Guards against injury

B. Corral or pen breeding

1. Turn male and female together in corral
2. Attendents remain out of corral for observation

C. Pasture breeding (horses only)

1. Turn stallion into a pasture with mares
2. Used in the western United States
3. Stallion breeds fewer mares

X. Time cycle for companion animals

A. Cats

1. Gestation, 58-70 days
2. Litter size, 4-6
3. Weaning, 8 weeks
4. Maturity, 6-12 months
5. Lifespan, 14 years

INFORMATION SHEET

B. Dogs

1. Gestation, 63 days
2. Litter size, 2-12
3. Cycle, 6 months
4. Weaning, 3-8 weeks
5. Maturity, 76 weeks
6. Lifespan, 8-16 years

(NOTE: Large dogs have an 8 to 12 month cycle and small dogs a 6 month cycle.)

C. Horses

1. Gestation, 11 months
2. Litter size, 1
3. Weaning, 5 months
4. Maturity, 15-24 months
5. Lifespan, 20 years

XI. Parturition

A. Preparturition

1. Udder full of milk
2. Milk drops from udder
3. Ligaments slacken above tail
4. Belly drops
5. Female will isolate herself

B. Parturition

1. Female lies down to foul
2. Water bag observed first
3. Front feet emerge, closely followed by nose
4. Shoulders and brisket emerge
5. Finally hips and hind legs emerge

INFORMATION SHEET

C. Postparturition

1. Observe that placenta passes with foal
2. Dip young's umbilical cord in iodine
3. Tie umbilical cord; cut off
4. Treat with iodine

XII. Abnormalities

A. Leg back of head

1. Scrub up and check mare
2. Locate missing hoof
3. Place hand over hoof
4. Shove foal back in order to gain room
5. Slip leg up
6. Pull leg up
7. Straighten foal into normal birth position

   (NOTE: Cover hoof with hand.)

B. Head back

1. Scrub up and check mare
2. Locate head
3. Slip noose through foal's mouth and behind ears
4. Work head around

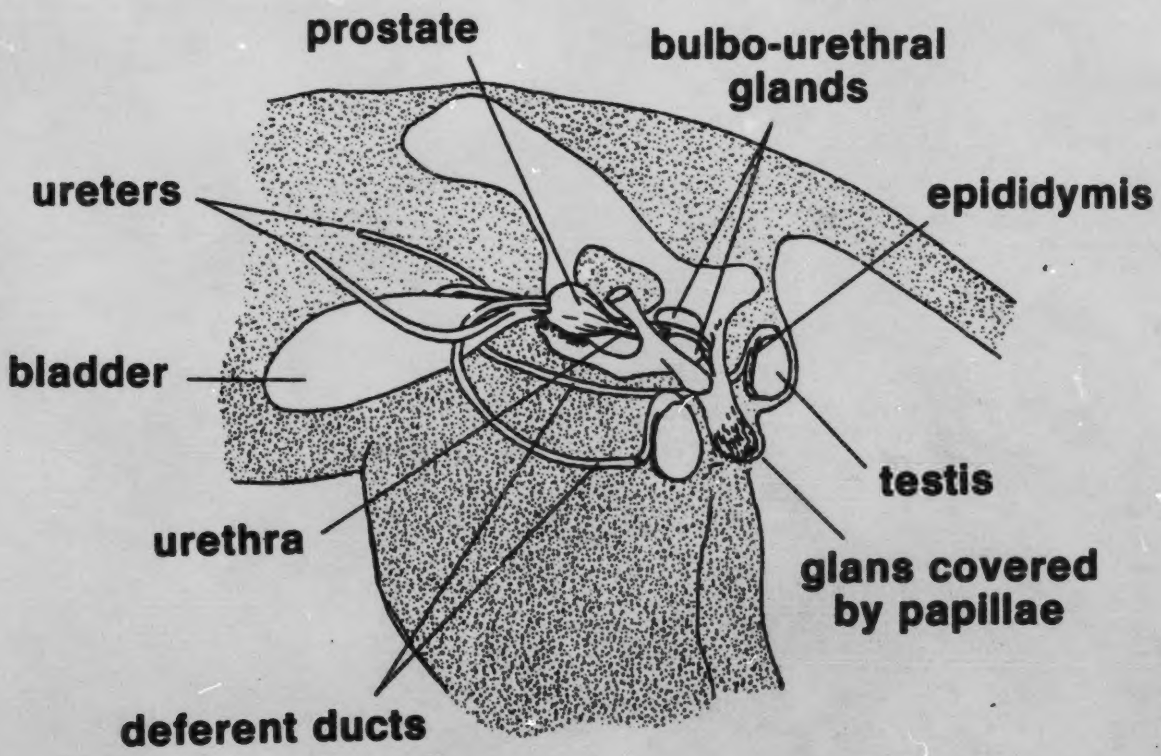
   (NOTE: Don't use fence stretcher or tractor.)

5. Don't work longer than 15 minutes without results; call veterinarian

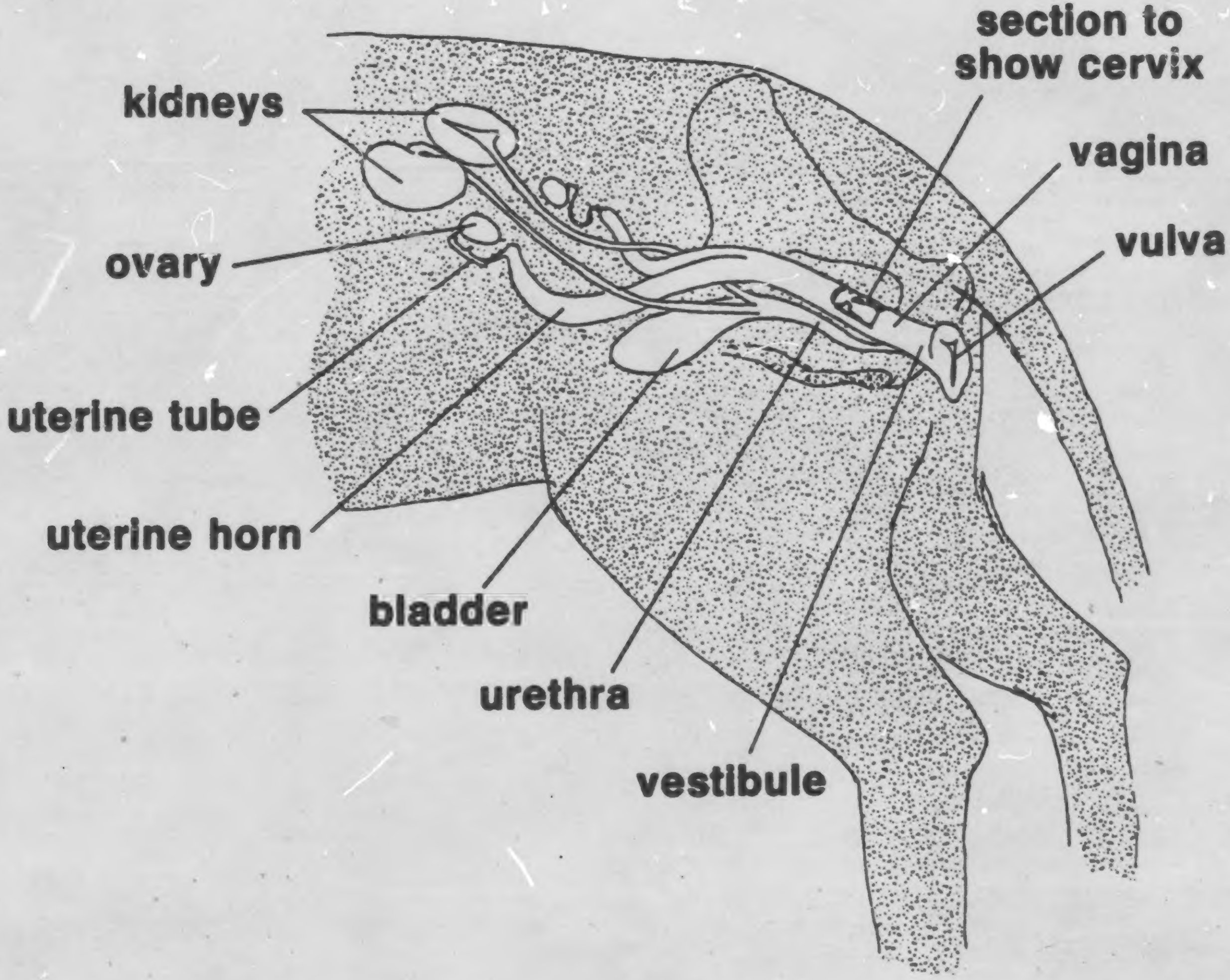
C. Rear presentation

1. Scrub up and check mare
2. Push back buttocks and lift up on legs
3. Legs positioned in birth track

GENITAL SYSTEM OF MALE CAT


prostate
bulbo-urethral glands
ureters
epididymis
bladder
testis
urethra
glans covered by papillae
deferent ducts

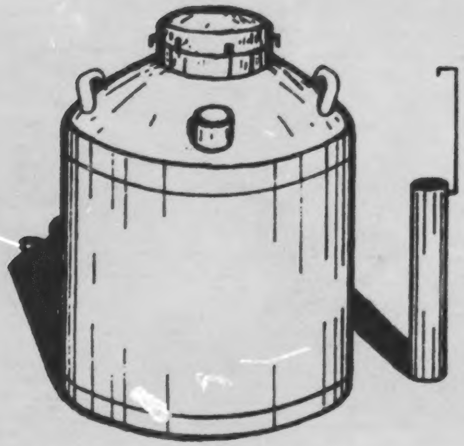
GENITAL SYSTEM OF FEMALE DOG


section to show cervix
kidneys
vagina
vulva
ovary
uterine tube
uterine horn
bladder
urethra
vestibule

TM 2

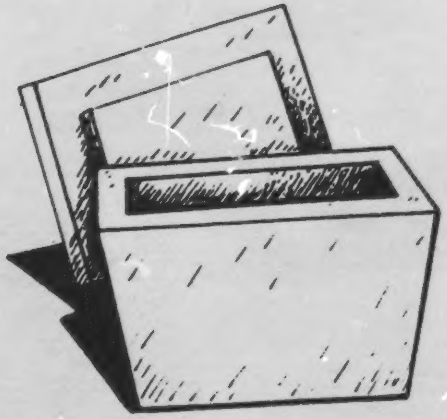
CA-211-B

TOOLS USED IN INSEMINATING

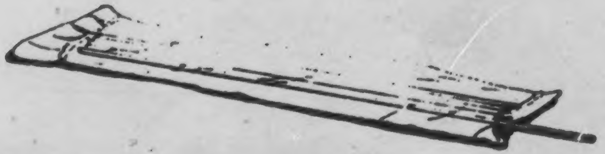


Nitrogen Chest

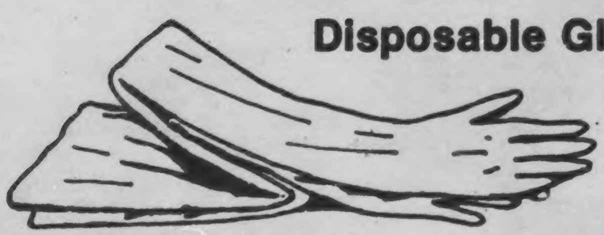
Thaw Box



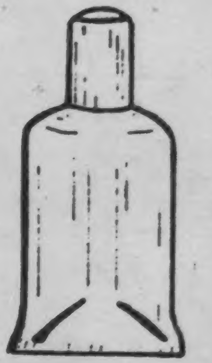
Inseminating Tubes



Disposable Gloves



Polybulb



TM 3

CA-213-B

FACTORS INCREASING PERCENTAGE OF FOALING

A. Breed Late Spring

B. Breed 3 and 4 year olds

C. Disenfect Infections and Unhealthy Conditions

D. Breed At Proper Time

E. Feed and Care Properly

COMPANION ANIMAL REPRODUCTION
UNIT IX

ASSIGNMENT SHEET #1—CALCULATE DATE OF PARTURITION

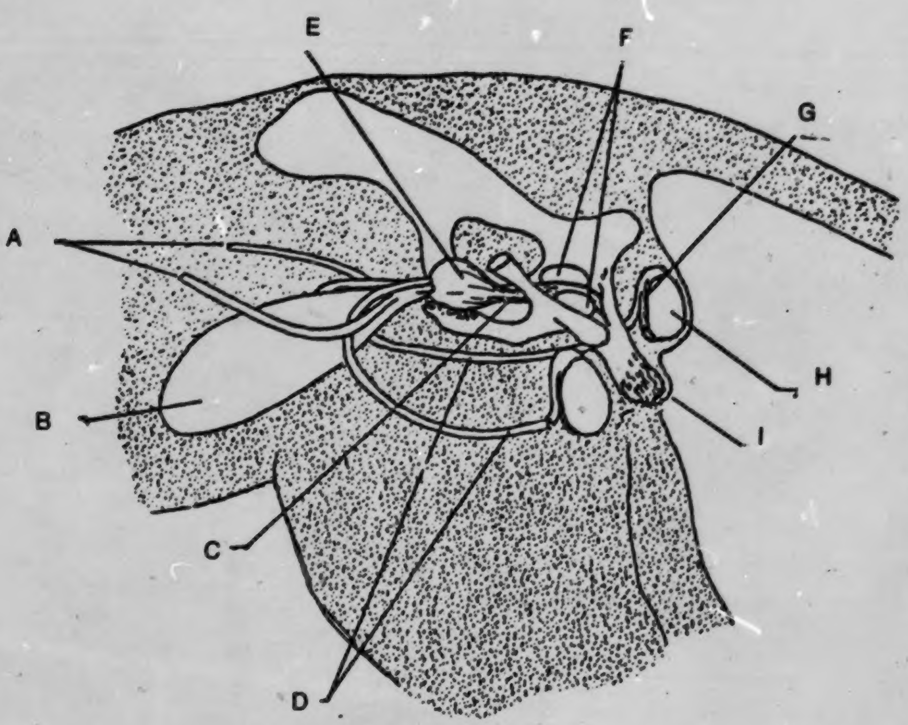
Calculate the date of parturition for the situations below.

	Date Bred	Paturition Date
Mare	Oct 21	__________
Bitch	Feb 5	__________
Queen	May 15	__________

COMPANION ANIMAL REPRODUCTION
UNIT IX

ASSIGNMENT SHEET #2—IDENTIFY REPRODUCTIVE ORGANS OF MALE CAT

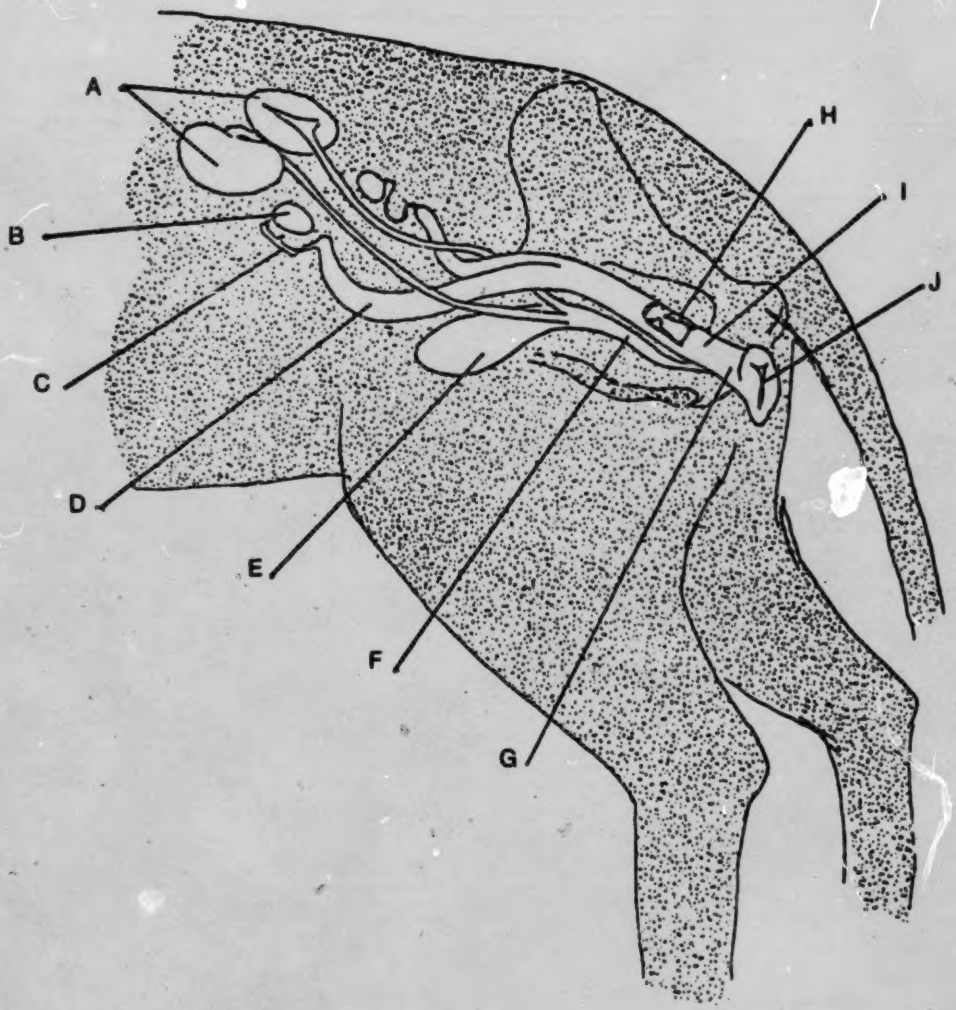
Identify the parts of the male cat's reproductive track by writing the correct names in the blanks provided.



COMPANION ANIMAL REPRODUCTION
UNIT IX

ASSIGNMENT SHEET #3—IDENTIFY REPRODUCTIVE ORGANS OF FEMALE DOG

Identify the parts of the female dog's reproductive track by writing the correct names in the blanks provided.



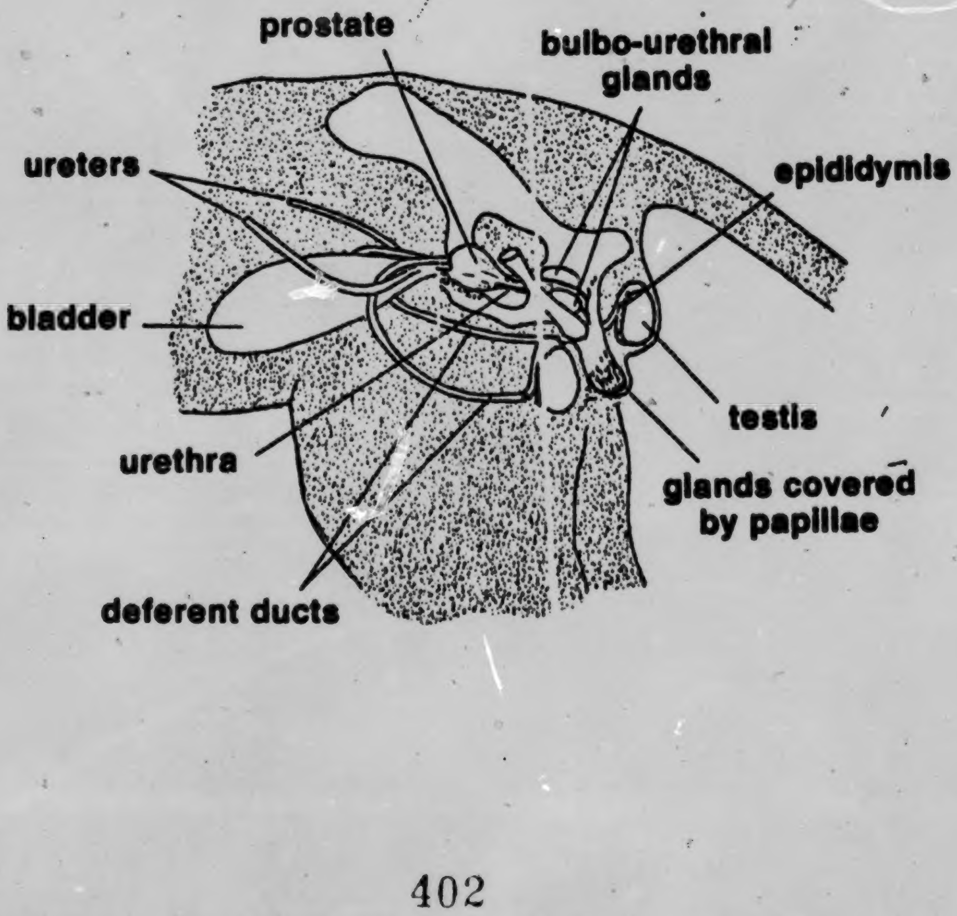
COMPANION ANIMAL REPRODUCTION
UNIT IX

ANSWERS TO ASSIGNMENT SHEETS

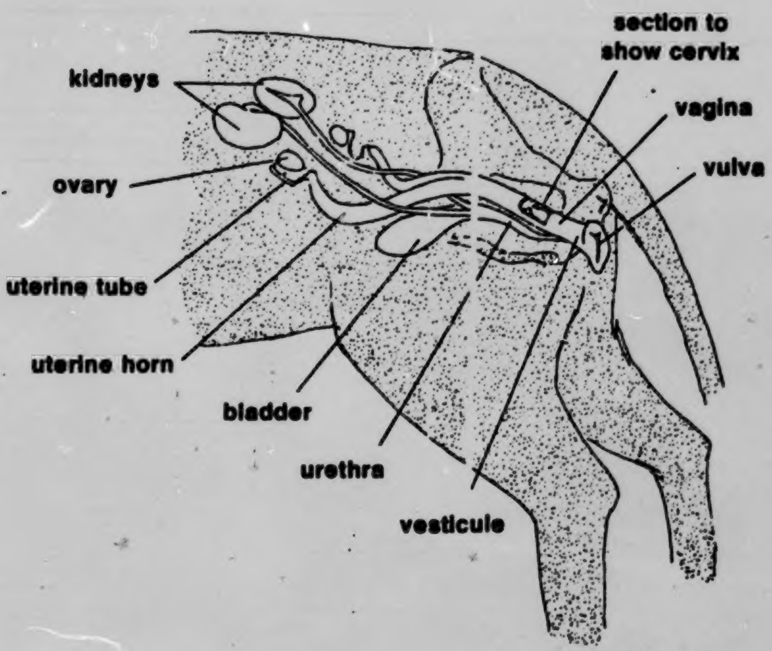
Assignment Sheet #1

Mare	Sept. 21
Bitch	April 9
Queen	July 18 – Aug. 18

Assignment Sheet #2


prostate
bulbo-urethral glands
ureters
epididymis
bladder
testis
urethra
glands covered by papillae
deferent ducts

Assignment Sheet #3


section to
show cervix
kidneys
vagina
vulva
ovary
uterine tube
uterine horn
bladder
urethra
vesticule

COMPANION ANIMALS REPRODUCTION
UNIT IX
TEST

1. Match the terms on the right with the correct definitions.

____ a. Period during which sexual receptivity of the female to courtship and copulation is evident; commonly called "heat"

____ b. Hind legs come first during parturition

____ c. That which is imperfectly formed or developed; fails to reach maturation

____ d. Organism in the earlier stages of development in prenatal life

____ e. Uncontrollable sexual desire in animals

____ f. Unborn offspring in later stages of development in prenatal life

____ g. Female dog

____ h. Birth by surgery

____ i. Act or process of giving birth to young

____ j. Genetic transmission of the physical and mental characteristics of parents to their offspring

____ k. False pregnancy

____ l. Primary sex gland; ovary or testis

____ m. Sexual union of male and female; intercourse

____ n. Period of sexual quiescence between two periods of sexual activity in cyclically breeding animals

____ o. Pregnancy; carrying of product of conception within the uterus from fertilization to delivery

____ p. Ultimate unit of inheritance; carried by the chromosomes and transmitted in the germ cells

1. Estrus (oestrus)
2. Anesterus
3. Copulation
4. Abortion
5. Embryo
6. Fetus
7. Gene
8. Gestation
9. Gonad
10. Heredity
11. Parturition
12. Nymphomania
13. Pseudocyesis
14. Caesarian section
15. Bitch
16. Breech birth

2. Identify the five parts of the male genital system as shown below.

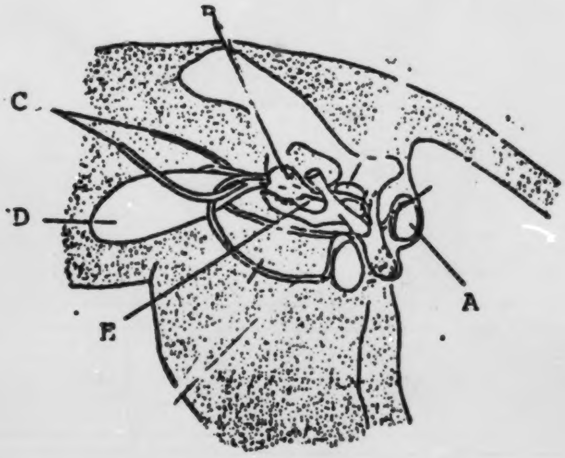
a.

b.

c.

d.

e.



3. Identify the five parts of the female genital system as shown below.

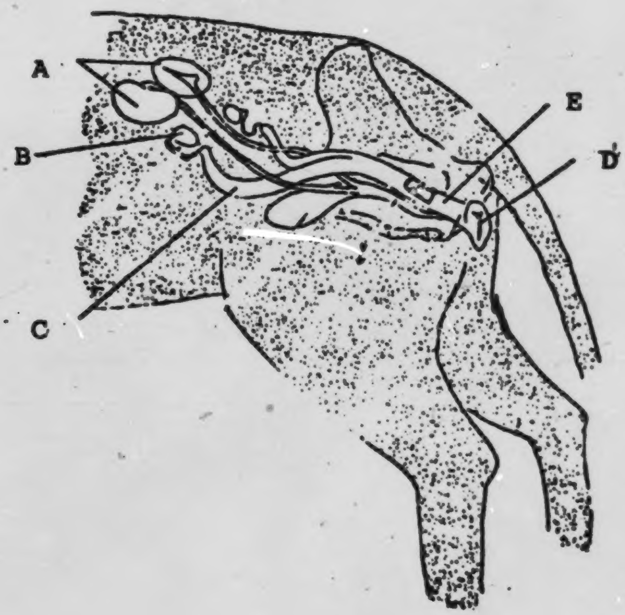
a.

b.

c.

d.

e.



4. Identify the five tools used in artificial insemination as shown below.

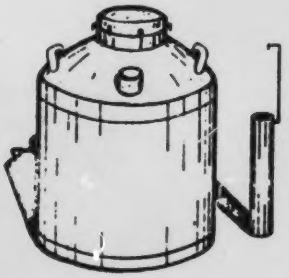
a.

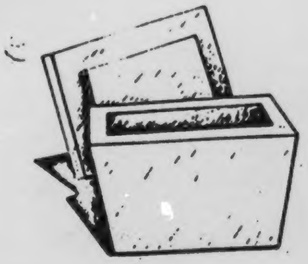
b.

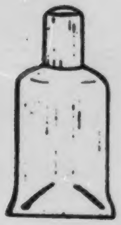
c.

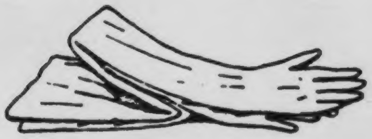
d.

e.









5. Distinguish between the advantages and disadvantages of artificial insemination. Place an "X" in the blanks describing the advantages.

____ a. Lower conception rate than natural service

____ b. Closer supervision of female required

____ c. Regulation of birth time

____ d. Prevention of disease

____ e. Improvement of foals

____ f. Closer supervision of female required

____ g. Wider selection of studs

____ h. Reduction in cost of keeping a stud

6. List the five signs of estrus.

   a.

   b.

   c.

   d.

   e.

7. List four factors to increase percentage of foals.

   a.

   b.

   c.

   d.

8. List five mating considerations.

   a.

   b.

   c.

   d.

   e.

9. Distinguish between hand breeding (B), corral or pen breeding (C), and pasture breeding (P). Write the correct letters in the blanks provided.

   ____ a. Best way

   ____ b. Guards against injury

   ____ c. Stallion handles fewer mares

   ____ d. Turn male and female together in a corral

   ____ e. Used in western United States

   ____ f. Attendent remains out of corral

   ____ g. Turn stallion into a pasture with mares

10. Complete the time cycle of the dog.

    a. Gestation

    b. Litter size

    c. Esterus cycle

    d. Weaning

    e. Maturity

    f. Lifespan

11. Describe the three stages of parturition.

    a. Preparturition

    b. Parturition

    c. Postparturition

12. Arrange in order the six steps to remove the leg from back of head. Place a "1" in front of the first step, a "2" in front of the second, and so on.

    ___ a. Locate missing hoof

    ___ b. Pull leg up

    ___ c. Straighten foal into normal birth position

    ___ d. Scrub up and check mare

    ___ e. Shove foal back in order to gain room

    ___ f. Locate missing hoof

    ___ g. Slip leg up

CA-233-B

COMPANION ANIMAL REPRODUCTION
UNIT IX
ANSWERS TO TEST

1. a. 1
   b. 16
   c. 4
   d. 5
   e. 12
   f. 6
   g. 15
   h. 14
   i. 11
   j. 10
   k. 13
   l. 9
   m. 3
   n. 2
   o. 8
   p. 7

2. a. Testis
   b. Prostate
   c. Ureters
   d. Bladder
   e. Urethra

3. a. Kidneys
   b. Ovary
   c. Uterine horn
   d. Vulva
   e. Vagina

4. a. Nitrogen chest
   b. Disposable glove
   c. Polybulb
   d. Inseminating tubes
   e. Thaw box

5. c, d, e, g, h

6. a. Relaxation of external genitals
   b. Frequent urination
   c. Teasing other animals

- d. Desire for company
- e. Slight mucous discharge

7. Any four of the following:
   - a. Breed late spring
   - b. Breed 3 and 4 year olds
   - c. Disinfect infections and unhealthy conditions
   - d. Breed at proper time
   - e. Feed and care properly

8. Any five of the following:
   - a. Take female to male animal
   - b. If female is away longer than 5 to 6 hours, take young along
   - c. Check quarantine periods and health requirements
   - d. Allow female to become quiet and comfortable
   - e. If excited, cool before breeding
   - f. Make sure female is in estrus
   - g. Wash mare's reproductive organs and bandage tail
   - h. Use twitch and hobbles on mare before breeding; muzzle bitch
   - i. Keep stallion under control
   - j. Don't breed on first heat cycle

9. a. B
   - b. B
   - c. P
   - d. C
   - e. P
   - f. C
   - g. P

10. a. Gestation, 63 days
    - b. Litter size, 2-12
    - c. Estrus Cycle, 6 months
    - d. Weaning, 3-8 weeks
    - e. Maturity, 76 weeks
    - f. Lifespan, 8-16 years

11. Descriptions should include:
    - A. Preparturition
        1. Udder full of milk
        2. Milk drops from udder
        3. Ligaments slacken above tail
        4. Belly drops
        5. Female will isolate herself
    - B. Parturition
        1. Female lies down to foal
        2. Water bag observed first
        3. Front feet emerge, closely followed by nose
        4. Shoulders and brisket emerge
        5. Finally hips and hind legs emerge
    - C. Postparturition
        1. Observe that placenta passes with foal
        2. Dip young's umbilical cord in iodine
        3. Tie umbilical cord; cut off
        4. Treat with iodine

12. a. 2
    - b. 5
    - c. 7
    - d. 1
    - e. 4
    - f. 3
    - g. 6

COMPANION ANIMAL GROOMING
UNIT X

UNIT OBJECTIVE

After completion of this unit, the student should be able to describe the proper method of grooming a dog, cat, and horse; identify the various equipment used in grooming each; and be able to demonstrate cleaning a horse's foot. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with companion animal grooming to the correct definitions.
2. List four factors about horse grooming.
3. List four factors about cleaning a horse's hoof.
4. List four factors about cat grooming.
5. Describe three areas of grooming a dog.
6. Demonstrate the ability to:
    a. Clean horse's hoof.
    b. Bathe a dog.
    c. Trim and file nails.
    d. Comb dog.
    e. Apply standing bandage.
    f. Shape tail by bandaging.
    g. Braid horse's mane.

COMPANION ANIMAL GROOMING
UNIT X

SUGGESTED ACTIVITIES

I. Instructor:

   A. Provide students with objective sheet.

   B. Provide students with information and job sheets.

   C. Make transparencies.

   D. Discuss unit and specific objectives.

   E. Discuss information sheets.

   F. Demonstrate and discuss procedures outlined in job sheets.

   G. Give test.

II. Student:

   A. Read objectives.

   B. Study information sheet.

   C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

   D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

   A. Objective sheet

   B. Information sheet

   C. Transparency masters

      1. TM #1—Bathing Companion Animals

      2. TM #2—Shedding—Influenced by Day Length

   D. Job sheets

      1. Job Sheet #1—Clean Horse's Hoof

    2. Job Sheet #2—Bathe a Dog
    3. Job Sheet #3—Trim and File Nails
    4. Job Sheet #4—Comb a Dog
    5. Job Sheet #5—Apply Standing Banding
    6. Job Sheet #6—Shape Tail by Bandaging
    7. Job Sheet #7—Braid Horse's Mane

  E. Test

  F. Answers to test

II. References:

A. Carlile, Robert B. *Veterinarian Assistant.* Columbia, Missouri: Instructional Materials Laboratory, 1975.

B. Whitney, Leon F., D.V.M. *The Complete Book of Dog Care.* Garden City, New York: Doubleday and Company, Inc., 1953.

C. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care.* Garden City, New York: Doubleday and Company, Inc., 1953.

COMPANION ANIMAL GROOMING
UNIT X

INFORMATION SHEET

I. Terms and definitions

   A. Matting comb—Heavy comb with wide teeth used for removing mats from long-haired breeds

   B. Finishing comb—Regulation sized comb with about 62 teeth of which half are medium sized and half fine; used on all breeds of cats

   C. Wire slicker brush—Wire brush made in various sizes and used for removing dead hair and dematting on all breeds

   D. Universal slicker brush—Curved wire brush used specifically for dematting

   E. Pin brush—Oval brush used for regular brushing and dematting of long-coated dogs

   F. Rubber brush—Round or rectangular brush used on short-coated breeds for removing dead hair

   G. Shedding brush—Metal blade with leather handles on each end; when clasped together forms an oval; used on breeds which shed excessively, such as German Shepherd and Siberian Husky

   H. Guillotine—Nail clipper used for small and medium sized dogs

   I. Cage dryer—Used to dry an animal inside a cage and is placed on the door

   J. Floor dryer—High speed blow dryer used to fluff dry a long-coated dog

   K. Hemostat—Stainless steel scissors-like clamp used to clean and pluck hair from ears

   L. Scissors—Pliers-type nail clippers used for large dogs and hard nails

II. Horse grooming

   A. Groom horse each day

   B. Follow a definite system

INFORMATION SHEET

C. Start at head and work back on the near side (left side)

D. Don't neglect the head

E. Use wet sponge or soft brush to remove dirt from head area

F. Brush with the lay of the hair

G. Use your hands to rub, scratch, and massage

H. Work out tangles in mane and tail with fingers and coarse-tooth comb

III. Cleaning a horse's hoof

A. Proper cleaning of feet requires that you pick up each foot

B. Every foal should be taught to allow having its foot picked up and handled, thus when full-grown it will be accustomed to it

C. If you trim feet as the foal grows, you should have no trouble when it becomes full grown

D. Always work in order: near forefoot, near hind, off-forefoot, off-hind

E. Clean the hoof from heel to toe

(NOTE: Do not disturb frog.)

F. Clean cleft and commissures

G. Check the growth of the hoof for time to change shoes

IV. Grooming cats

A. Start grooming when a kitten

B. Use a wide-toothed metal comb and a fine-toothed flea comb, also a brush with long but not harsh bristles

(NOTE: Never use a brush with wire bristles)

C. Long-hair needs more grooming

D. For stains or grease remove with alcohol

E. Rub bay rum into the coat

F. Talcum powder is good for white or light-haired cats

G. Bathe the cat if very dirty

H. Use nail clippers for the claws

INFORMATION SHEET

9. Bathe in warm room

V. Grooming dogs

A. Coat

1. Short-haired—brushed
2. Terrier—plucking
3. Long-coated
    a. Combed
    b. Brushed

B. Nails

1. Cut periodically
2. Dew claw removed in first days of pup's life
3. Ordinary scissors should not be used to cut the nails

C. Eyes

1. Clean when eyes are red and discharge is in corner of eye
2. Wash with boric acid solution or salt solution
3. Don't force open newborn pup's eyes
4. Abnormal condition may be found secondary to infectious diseases

D. Ears

1. Irritation caused by soap, ear mites, water, or excessive wax
2. Symptoms
    a. Shaking head
    b. Scratching
    c. Holding ear down
3. Never wash ear with alcohol or peroxide

E. Baths (Transparency 1)

1. Give as seldom as possible

2. Frequent bathing removes oils and coats become dry and harsh
3. Wash well with coconut oil shampoo or a mild soap

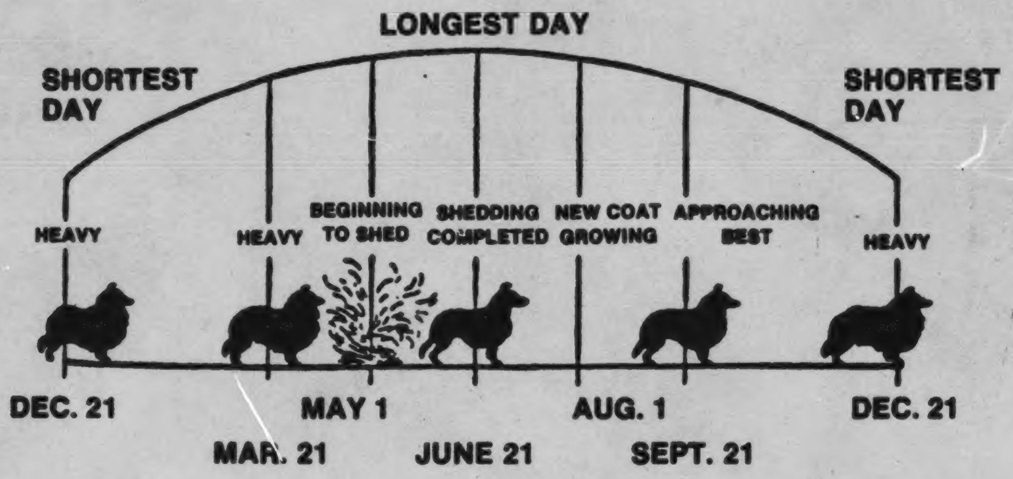
F. Shedding (Transparency 2)

1. Influenced by length of days
2. Some shed twice a year while others constantly
3. Brushing is important when shedding

BATHING COMPANION ANIMALS

TM 1

SHEDDING — INFLUENCED BY DAY LENGTH


LONGEST DAY
SHORTEST DAY
SHORTEST DAY
HEAVY
HEAVY
BEGINNING TO SHED
SHEDDING COMPLETED
NEW COAT GROWING
APPROACHING BEST
HEAVY
DEC. 21
MAR. 21
MAY 1
JUNE 21
AUG. 1
SEPT. 21
DEC. 21

COMPANION ANIMAL GROOMING
UNIT X
JOB SHEET #1—CLEAN HORSE'S HOOF

I. Equipment and materials

   A. Apron

   B. Lead rope

   C. Hoof spike

   D. Pedicure file

II. Procedure

   A. Near forefoot

      1. Slide left hand down cannon to fetlock (Figure 1)

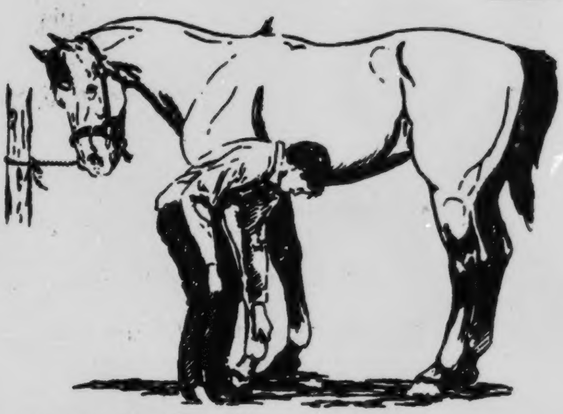


Figure 1

      2. Lean left shoulder against horse

      3. Pick up foot when horse shifts weight

      4. Place horse's foot between your legs

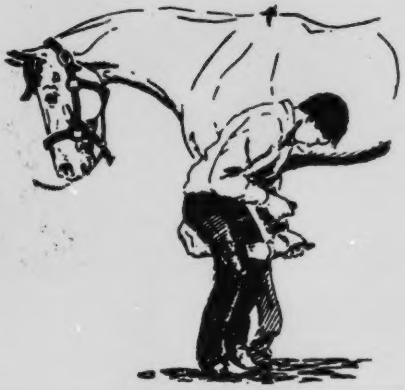


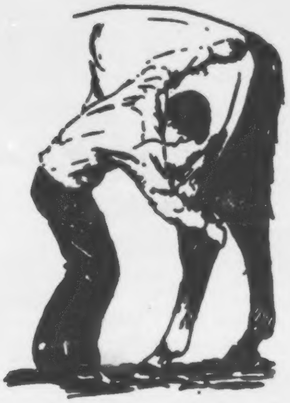
Figure 2

5. Clean hoof, heel to toe

B. Near hind foot

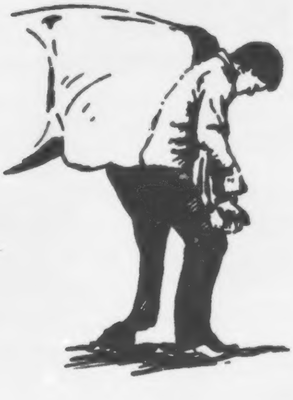
1. Stand foreward of the hindquarter
2. Stroke right hand from point of hip down the hip to middle cannon
3. Place left hand on hip, pressuring horse to shift weight (Figure 3)

Figure 3



4. Move to rear, keeping your leg straight
5. Swing left leg over the horse's fetlock
6. Hold hoof with left hand
7. Clean hoof, heel to toe with your right hand (Figure 4)

Figure 4



COMPANION ANIMAL GROOMING
UNIT X

JOB SHEET #2—BATHE A DOG

I. Tools and equipment

  A. Sponge

  B. Scrub brush

  C. Bowl

  D. Tub

  E. Spray hose

II. Procedure

  A. Mix shampoo

  B. Apply shampoo with eye drops

  C. Place animal in tub

  (NOTE: A dog's head should be put in a loop.)

  D. Thoroughly wet down animal

  E. Apply shampoo with sponge and scrub in

  (NOTE: Keep soap away from ears, eyes, and face.)

  F. Rinse and repeat

  G. Rinse a second time

  H. Squeeze off excess water

  I. Dry dog with dry towel

  J. Keep dog inside

COMPANION ANIMAL GROOMING
UNIT X

JOB SHEET #3—TRIM AND FILE NAILS

I. Equipment and materials

- A. Sponge swab
- B. Grooming table with post and loop
- C. Nail trimmer
- D. Pedicure file

II. Procedure (Figure 1)

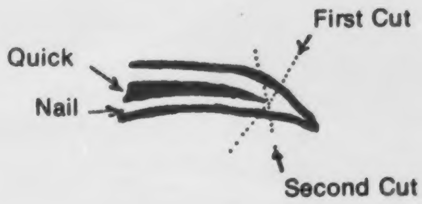


Figure 1

- A. Place dog on table with head in loop and adjust to size
- B. If nail is white, look for quick
- C. Cut straight up for first cut
- D. Make second cut on angle
- E. Use pedicure file to smooth nail

(NOTE: If quick is cut, put Kwick stop on the end of finger and push on nail to stop bleeding.)

COMPANION ANIMAL GROOMING
UNIT X

JOB SHEET #4—COMB A DOG

I. Equipment

   A. Long bristled brush

   B. Stiff haired brush

   C. Hound glove

   D. Dull pointed scissors

   E. Knot remover

II. Procedure

   A. Place dog on table

   B. Start combing at head and shoulders and work back

   C. Remove mats and burs from hair

   D. Use stiff brush

   E. Trim a dog with long and unruly hair

GROOMING COMPANION ANIMALS
UNIT X

JOB SHEET #5—APPLY STANDING BANDAGE

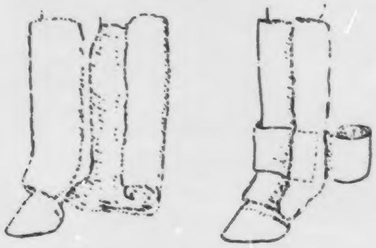
I. Equipment

- A. Cotton padding
- B. Tape or pins
- C. Bandages

II. Procedure

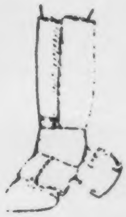
- A. Place cotton pad evenly around leg (Figures 1 and 2)

Figures 1 and 2



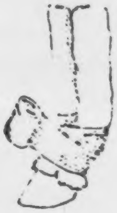
- B. Start to run bandage over the ankle
- C. Anchor bandage by tucking inside cotton (Figure 3)

Figure 3



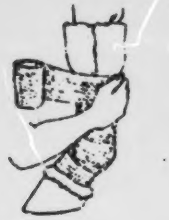
- D. Run bandage tightly over ankle (Figure 4)

Figure 4



E. Wrap downward over the ankle and under back of pastern (Figure 5)

Figure 5

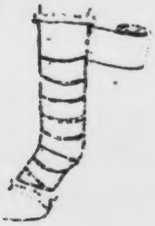


F. Wrap back up the leg

(NOTE: Overlap previous wrap by 1/3)

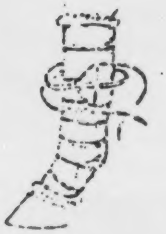
G. Wrap up to edge of cotton (Figure 6)

Figure 6



H. Start back down leg with remainder (Figure 7)

Figure 7



I. Fasten bandage with tape or pins (Figure 8)

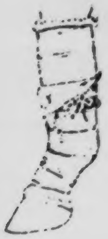


Figure 8

GROOMING COMPANION ANIMALS
UNIT X

JOB SHEET #6—SHAPE TAIL BY BANDAGING

I. Equipment

   A. Water

   B. Bandage

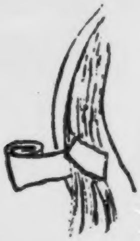
   C. Pins or tape

II. Procedure

   A. Dampen the top hairs of tail

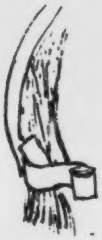
   B. Start bandage with 4" tab of bandage sticking up (Figure 1)

Figure 1



   C. Wrap bandage around end of tail over tab (Figure 2)

Figure 2



D. Pull tab down over first wrap (Figure 3)

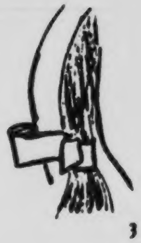


Figure 3

E. Wrap over the tab (Figure 4)

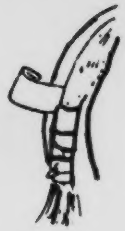


Figure 4

F. Wrap up tail to top (Figure 5)

(NOTE: Overlap each wrap 1/2 width of bandage)

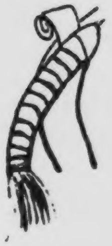


Figure 5

G. Wrap remaining bandage back down horse's tail (Figures 6 and 7)

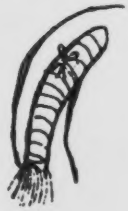


Figure 6

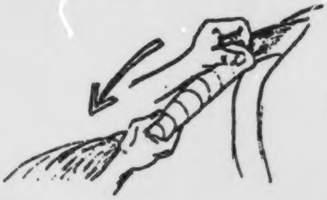


Figure 7

H. Fasten with tape or pins

GROOMING COMPANION ANIMALS
UNIT X
JOB SHEET #7—BRAID HORSE'S MANE

I. Equipment

A. Rubberband

B. Comb

C. Wet sponge

D. Clip

II. Procedure

A. Part a section of mane into 3" part (Figure 1)

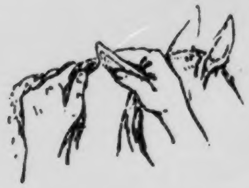


Figure 1

B. Hold unparted mane away with a clip (Figure 2)

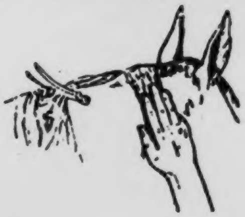


Figure 2

C. Wet mane section (Figure 3)

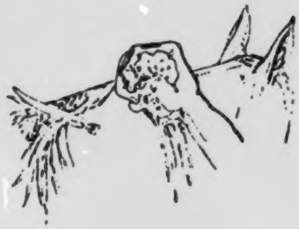


Figure 3

D. Divide section into three equal parts and braid (Figure 4)

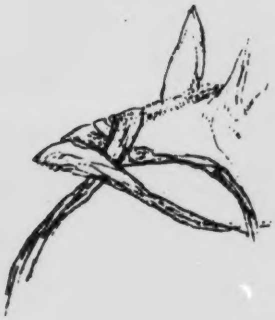


Figure 4

E. Pull hair across the width of crest (Figure 5)

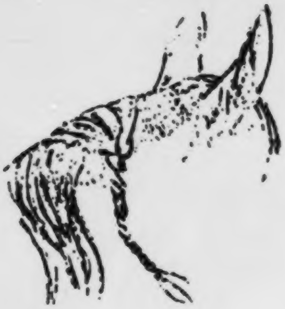


Figure 5

F. Fasten with rubber bands (Figure 6)

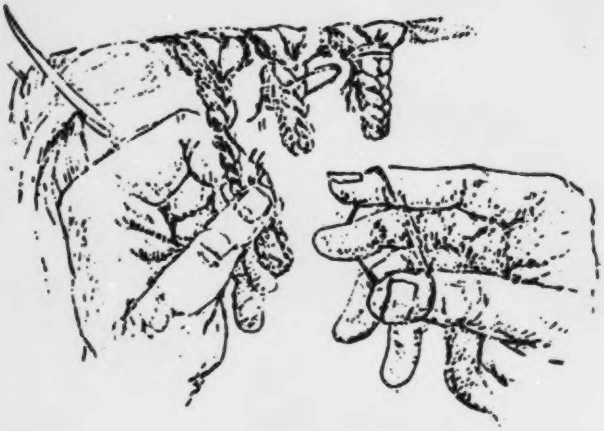


Figure 6

COMPANION ANIMAL GROOMING
UNIT X

TEST

1. Match the terms on the right with correct definitions.

____ a. Used to dry an animal inside a cage and is placed on the door

____ b. Round or rectangular brush used on short-coated breeds for removing dead hair

____ c. Stainless steel scissor-like clamp used to clean and pluck hair from ears

____ d. High speed blow dryer used to fluff dry long-coated dog

____ e. Heavy comb with wide teeth used for removing mats from long-haired breeds

____ f. Curved wire brush used specifically for dematting

____ g. Regulation sized comb with 62 teeth of which half are medium sized and half fine; used on all breeds and cats

____ h. Wire brush made in various sizes and used for removing dead hair and dematting on all breeds

____ i. Oval brush used for regular brushing and dematting of long-coated dogs

____ j. Metal blade with leather handles on each end; when clasped together forms an oval; used on breeds which shed excessively, such as German Shepherd and Siberian Husky

____ k. Nail clipper used for small and medium sized dogs

____ l. Pliers-type nail clippers used for large dogs and hard nails

1. Matting comb
2. Finishing comb
3. Wire slicker brush
4. Universal slicker brush
5. Pin brush
6. Rubber brush
7. Shedding brush
8. Guillotine
9. Cage dryer
10. Floor dryer
11. Hemostat
12. Scissors

2. List four factors about horse grooming.
   a.
   b.
   c.
   d.
3. List four factors about cleaning a horse's hoof.
   a.
   b.
   c.
   d.
4. List four factors about cat grooming.
   a.
   b.
   c.
   d.
5. Describe the following areas of properly grooming a dog.
   a. Coat
   b. Ears
   c. Nails
6. Demonstrate the ability to:
   a. Clip nails.
   b. Clean horse's hoof.
   c. Bathe a dog.
   d. Apply standing bandage.
   e. Shape tail by bandaging.
   f. Braid a horse's mane.

COMPANION ANIMAL GROOMING
UNIT X

ANSWERS TO TEST

1. a. 9
   b. 6
   c. 11
   d. 10
   e. 1
   f. 4
   g. 2
   h. 3
   i. 5
   j. 7
   k. 8
   l. 12

2. Any four of the following:
   a. Groom horse each day
   b. Follow a definite system
   c. Start at head and work back on the near side (left side)
   d. Don't neglect the head
   e. Use wet sponge or soft brush to remove dirt from head
   f. Brush with the lay of the hair
   g. Use your hands to rub, scratch, and massage
   h. Work out tangles in mane and tail with fingers and coarse-tooth comb

3. Any four of the following:
   a. Proper cleaning of feet requires that you pick up each foot
   b. Every foal should be taught to allow having its foot picked up and handled, thus when full grown it will be accustomed to it
   c. If you trim feet as the foal grows, you should have no trouble when it becomes full grown
   d. Always work in order near forefoot, near hind, off forefoot, off hind
   e. Clean the hoof from heel to toe; do not disturb frog
   f. Clean cleft and commissures
   g. Check the growth of the hoof for time to change shoes

4. Any four of the following:
    a. Start grooming when a kitten
    b. Use a wide-toothed metal comb and a fine-toothed flea comb, also a brush with long but not harsh bristles
    c. Long hair needs more grooming
    d. Rub bay rum into the coat
    e. Talcum powder is good for white or light-haired cats
    f. For stains or grease remove with alcohol
    g. Bathe the cat if very dirty
    h. Use nail clippers for the claws
    i. Bathe in warm room
5. Description should include:
    a. Coat
        1. Short-haired—brushed
        2. Terrier—plucking
        3. Long-coated
            a. Combed
            b. Brushed
    b. Ears
        1. Irritation caused by soap, ear mites, water, or excessive wax
        2. Symptoms
            a. Shaking head
            b. Scratching
            c. Holding ear down
        3. Never wash ear with alcohol or peroxide
    c. Nails
        1. Cut periodically
        2. Dew claw removed in first days of pup's life
        3. Ordinary scissors should not be used to cut the nails

COMPANION ANIMAL EQUIPMENT
UNIT X

UNIT OBJECTIVE

After completion of this unit, the student should be able to identify various types of equipment used with companion animals. The student should be able to saddle, bridle, and mount a horse. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with companion animal equipment to the correct definition.
2. Identify ten pieces of equipment used in grooming a horse.
3. Identify four pieces of equipment for feeding a horse.
4. Identify nine parts of the western saddle.
5. Identify seven parts of the bridle.
6. Identify three parts of the hackamore.
7. Identify three bit styles.
8. Identify four types of mouthpieces.
9. Identify six tools used to groom a dog.
10. List equipment used to bathe a dog.
11. List exercising equipment for a dog.
12. List cat equipment.
13. Demonstrate the ability to:
    a. Saddle a horse.
    b. Bridle a horse.
    c. Mount a horse.

COMPANION ANIMAL EQUIPMENT
UNIT X

SUGGESTED ACTIVITIES

I. Instructor:

  A. Provide students with objective sheet.

  B. Provide students with information sheet.

  C. Make transparencies.

  D. Discuss unit and specific objectives.

  E. Discuss information sheets.

  F. Demonstrate and discuss procedures outlined in the job sheets.

  G. Give test.

II. Student:

  A. Read objectives.

  B. Study information sheets.

  C. Demonstrate the ability to accomplish the procedures outlined in the job sheet.

  D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

  A. Objectives

  B. Information sheets

  C. Transparency masters

    1. TM 1—Equipment Used in Grooming a Horse

    2. TM 2—Equipment Used to Feed a Horse

    3. TM 3—Parts of the Saddle

    4. TM 4—Parts of the Bridle

5. TM 5—Parts of the Hackamore
6. TM 6—Main Styles of Bits
7. TM 7—Types of Mouthpieces
8. TM 8—Equipment Used in Grooming a Dog
9. TM 9—Equipment Used in Bathing a Dog

D. Job sheets

1. Job Sheet #1—Saddle a Horse
2. Job Sheet #2—Bridle a Horse
3. Job Sheet #3—Mount a Horse

E. Test

F. Answers to test

II. References:

A. Charlile, Robert B. *Veterinarian Assistant*. Columbia, Missouri: Instructional Materials Laboratory, 1975.

B. Whitney, Leon F., D.V.M. *The Complete Book of Dog Care*. Garden City, New York: Double Day and Company, Inc., 1953.

C. Whitney, Leon F., D.V.M. *The Complete Book of Cat Care*. Garden City, New York: Double Day and Company, Inc., 1953.

COMPANION ANIMAL EQUIPMENT
UNIT XI
INFORMATION SHEET

I. Terms and definitions

   A. Bight of the reins—Part of the reins passing between thumb and fingers and out the top of the hand

   B. Bosal—Braided rawhide or rope noseband of a bosal hackamore; knotted under the horse's jaw

   C. Champing—Term that describes the horse's playing with the bit

   D. Cinch—Girth of a western saddle

   E. Crab bit—Bit with prongs extending at the nose to tip horses's head up

   F. Curry—Cleaning with a currycomb

   G. Halter puller—Horse that pulls back on the halter rope

   H. Hard mouthed—Membranes of the bars of the mouth where the bit rests have become toughened and nerves deadened because of pressure of the bit

   I. Mounting—Act of getting on a horse

II. Equipment used to groom a horse (Transparency 1)

   A. Handful of straw

   B. Sweat scraper

   C. Hoof pick

   D. Sponge

   E. Dandy brush

   F. Body brush

   G. Curry comb

   H. Dry water brush

   I. Stable rubber

   J. Hoof oil

III. Feeding equipment (Transparency 2)

   A. Galvinized 5 gal. bucket

   B. Wooden feed bunk or manger

INFORMATION SHEET

C. Hay net

D. Salt block

IV. Parts of the western saddle (Transparency 3)

A. Horn

B. Fork

C. Seat

D. Cattle

E. Dee ring

F. Skirts

G. Cinch spacer

H. Rear cinch

I. Stirrup leather

J. Stirrup

K. Fender

L. Rope strap

M. Birth

N. Front cinch strap

O. Sheepskin lining

P. Seat

Q. Carrier

R. Stirrup leather keeper

S. Pommel

V. Bridle parts (Transparency 4)

A. Browband

B. Crownpiece

C. Throatlatch

D. Cheekpiece

E. Curb strap

F. Bit

G. Reins

VI. Hackamore parts (Transparency 5)

A. Headstall

B. Fiador

C. Bosal

INFORMATION SHEET

VII. Bit styles (Transparency 6)

- A. Snaffle
- B. Curb bit (straigh. mouthpiece)
- C. Spade

VIII. Types of mouthpieces (Transparency 7)

- A. Low port
- B. Medium port
- C. High port
- D. Half breed

IX. Dog grooming equipment (Transparency 8)

- A. Brush for wiry or medium length coats
- B. Slicker—ideal for long-haired dogs
- C. Metal comb
- D. Electric clippers
- E. Hound glove for smooth-haired dogs
- F. Nail clippers

X. Equipment used to bathe a dog (Transparency 9)

- A. Pitcher for rinsing
- B. Towels
- C. Mild shampoo
- D. Vegetable oil and eyedropper

XI. Exercising equipment

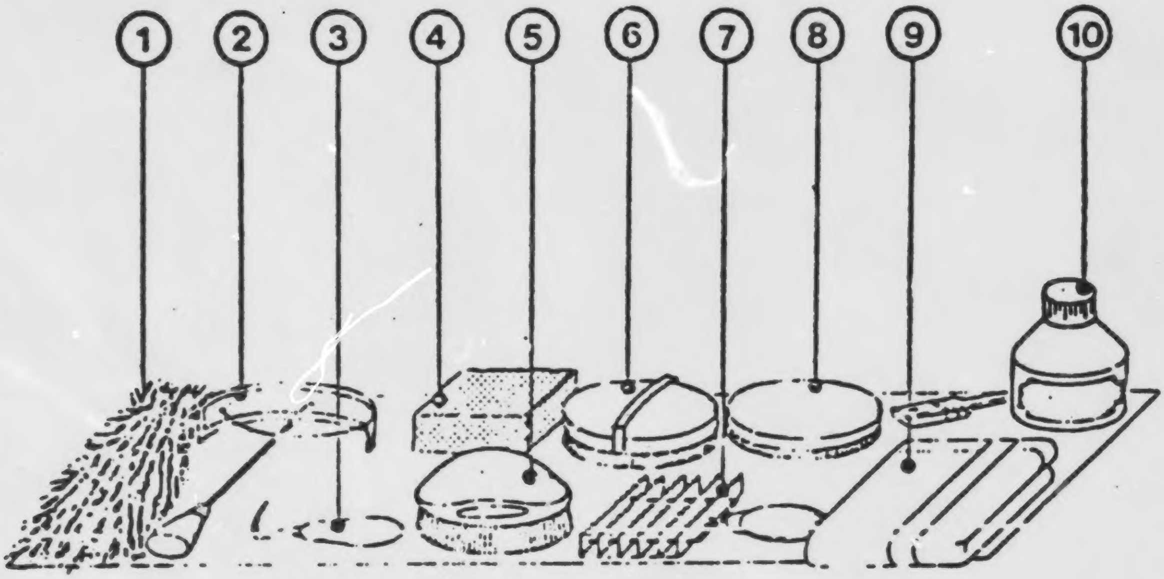
- A. Flat leather collar
- B. Rounded leather collar

- C. Choke chain and chain leash
- D. Leather leash
- E. Harness
- F. Coat

XII. Cat equipment

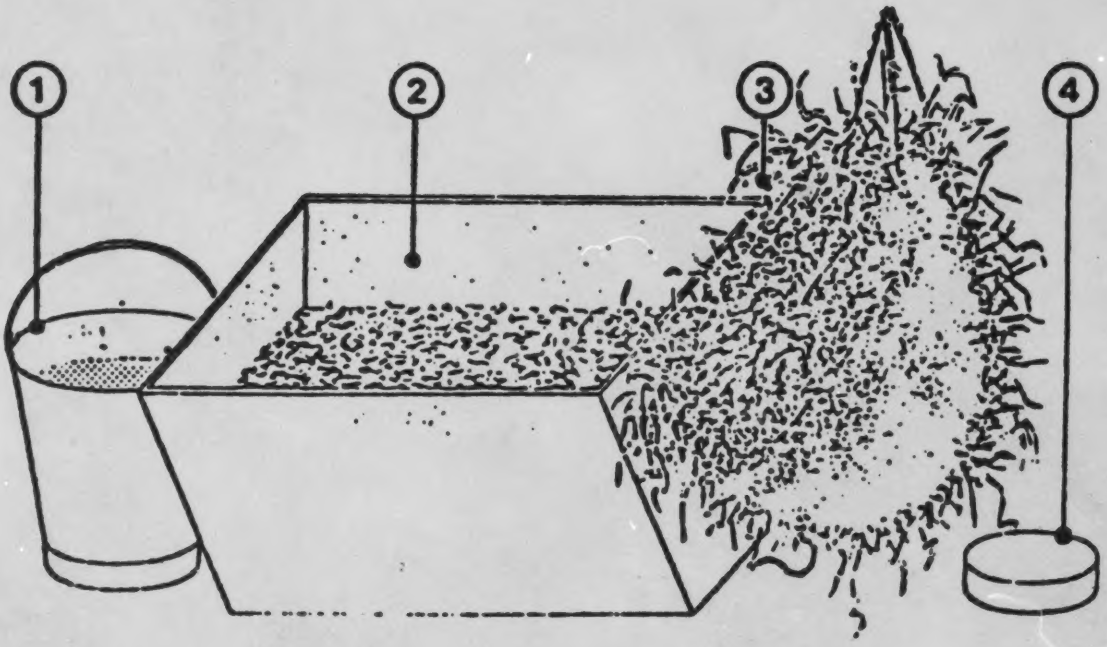
- A. Grooming
    - 1. Brush with wire slicker
    - 2. Scissors
    - 3. Nail clippers
- B. Housing and toys
    - 1. Litter pan
    - 2. Litter
    - 3. Scratching post
    - 4. String
    - 5. Ping-pong ball
    - 6. Empty sewing thread spool
    - 7. Catnip mouse

EQUIPMENT USED IN GROOMING A HORSE



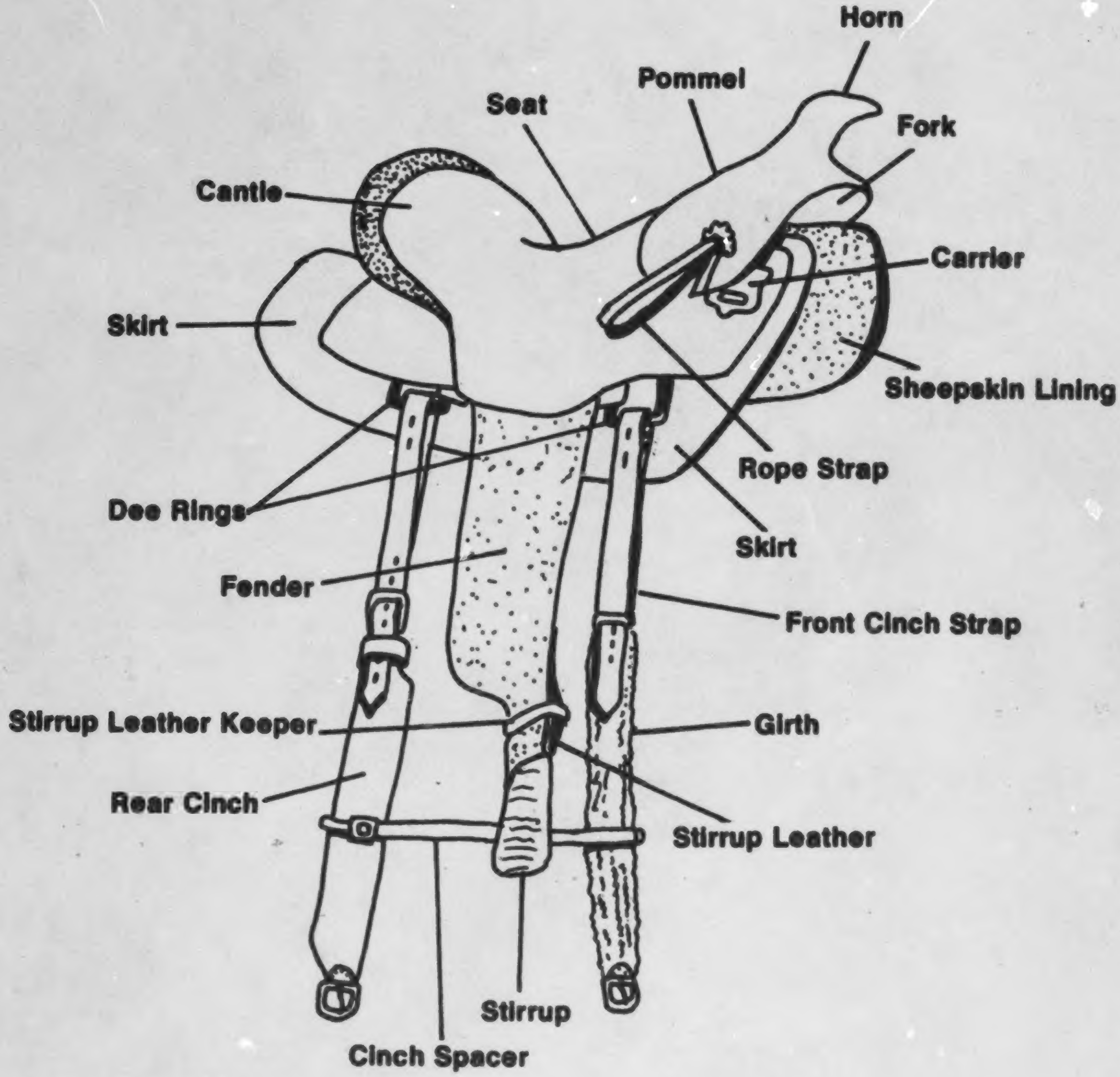
1) Handful of straw
2) Sweat scraper
3) Hoof pick
4) Sponge
5) Dandy brush
6) Body brush
7) Curry Comb
8) Dry water brush
9) Stable rubber
10) Hoof oil

EQUIPMENT USED TO FEED A HORSE



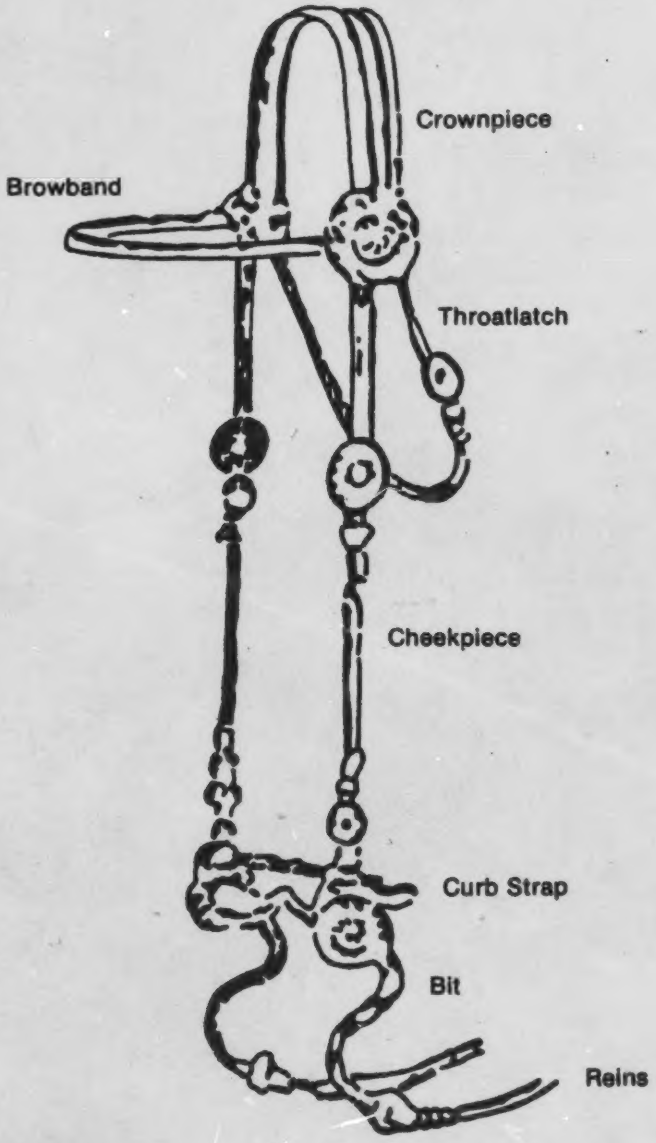
1) Galvinized 5 gallon bucket
2) Wooden feed bunk or manger
3) Hay net
4) Salt block

A BASIC SADDLE


Horn
Pommel
Seat
Fork
Cantle
Carrier
Skirt
Sheepskin Lining
Rope Strap
Dee Rings
Skirt
Fender
Front Cinch Strap
Stirrup Leather Keeper
Girth
Rear Cinch
Stirrup Leather
Stirrup
Cinch Spacer

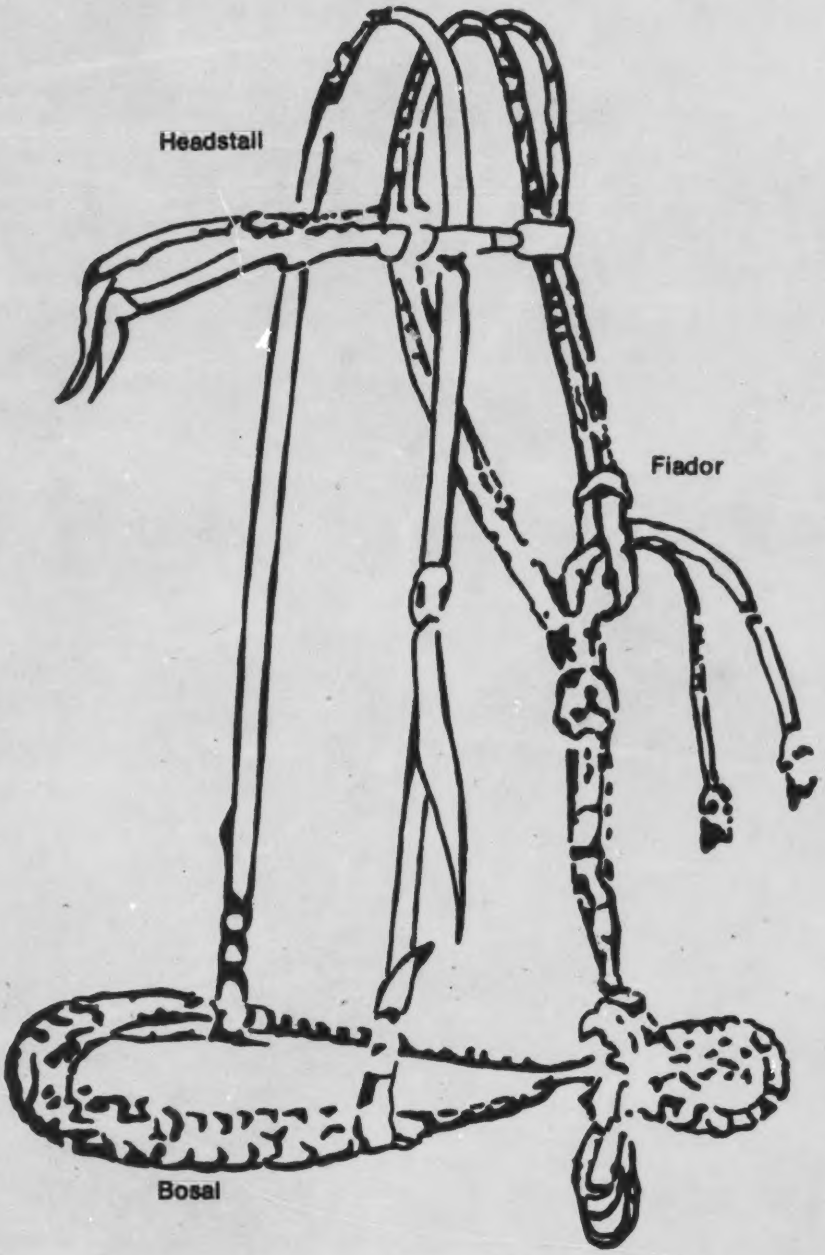
TM 3

PARTS OF THE BRIDLE

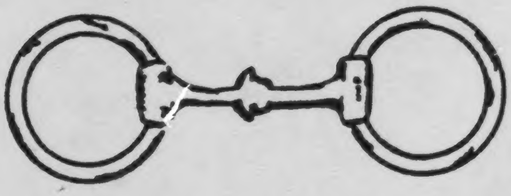

Crownpiece
Browband
Throatlatch
Cheekpiece
Curb Strap
Bit
Reins

TM 4

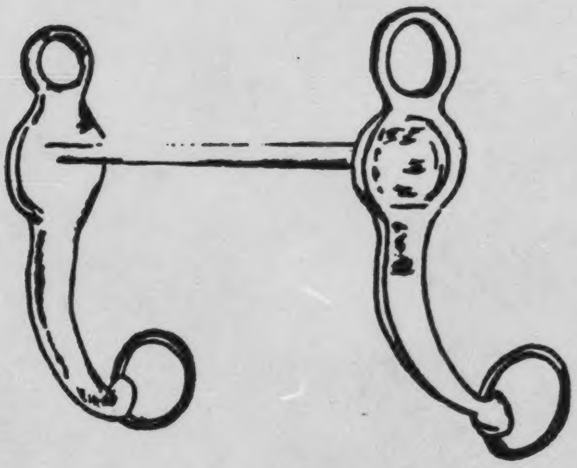
PARTS OF THE HACKAMORE


Headstall
Fiador
Bosal

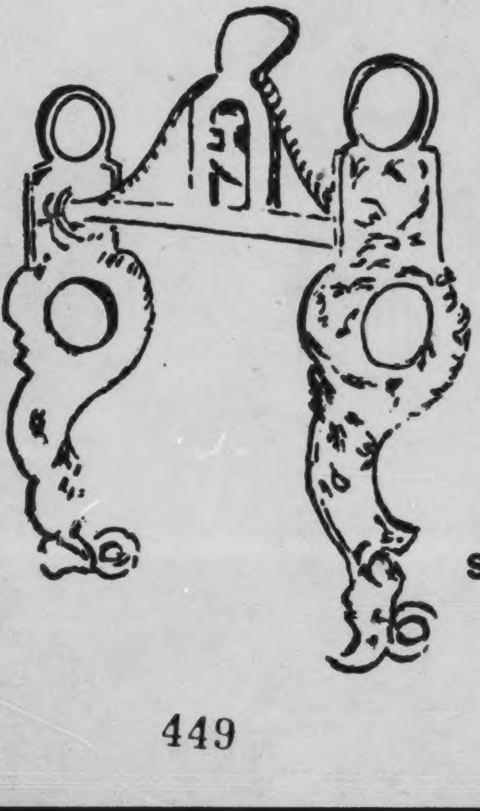
THREE MAIN STYLES OF BITS



Snaffle



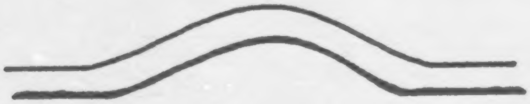
Curb Bit
Straight Mouthpiece



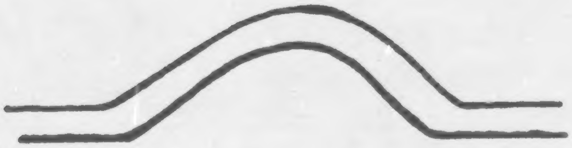
Spade

TM 6

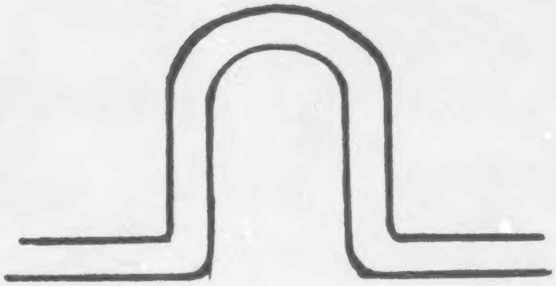
TYPES OF MOUTHPIECES



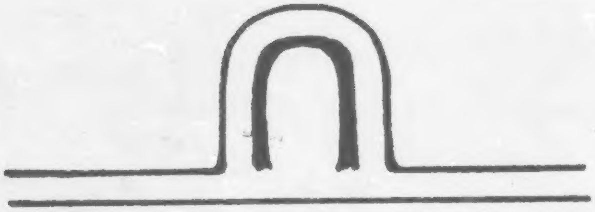
Low Port



Medium Port



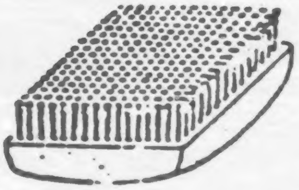
High Port



Half Breed

EQUIPMENT USED IN GROOMING A DOG

1



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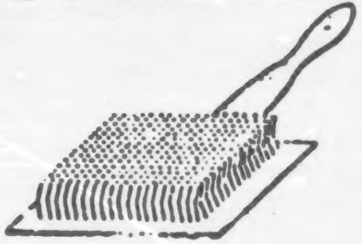

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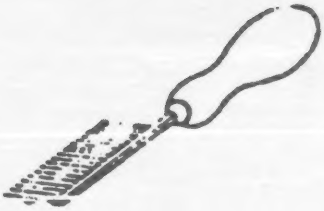

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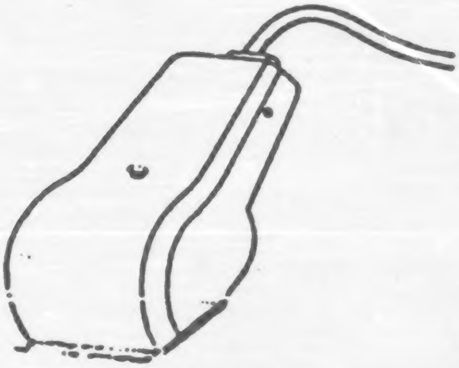
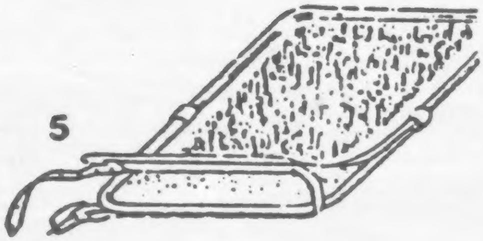
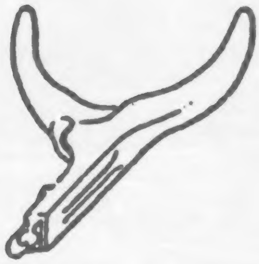


5

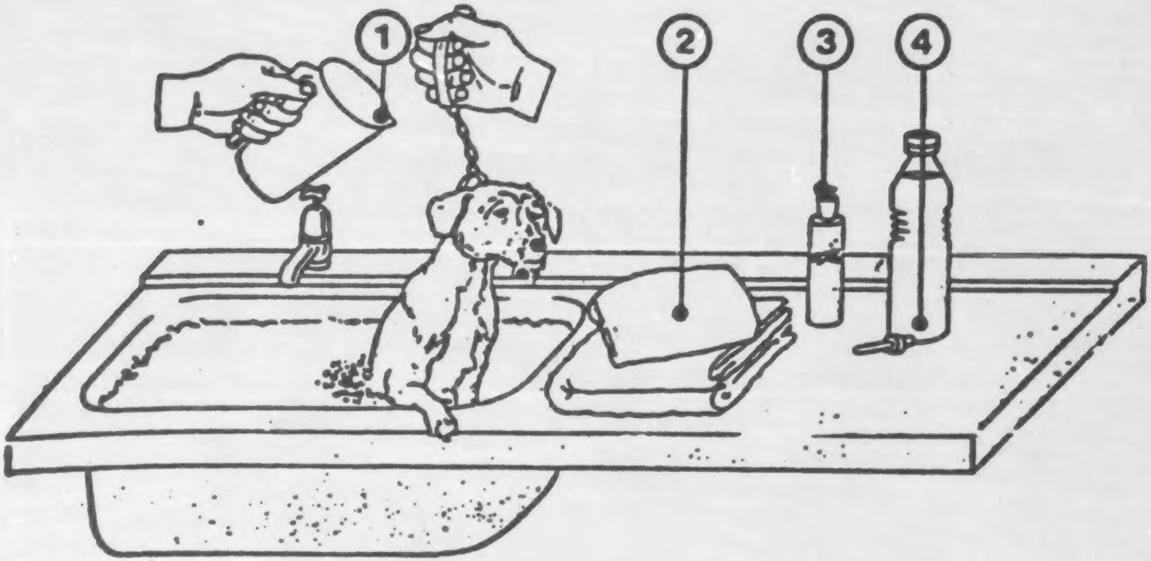


6



1) Brush for wiry or medium length coats
2) Slicker ideal for longhaired dogs
3) Metal comb
4) Electric clippers
5) Hound glove for grooming smooth-haired dogs
6) Nail clippers

EQUIPMENT USED IN BATHING A DOG



1) A pitcher (for rinsing)
2) Towels
3) Mild shampoo
4) Vegetable oil and eyedropper

COMPANION ANIMAL EQUIPMENT
UNIT XI

JOB SHEET #1—SADDLE A HORSE

I. Equipment

  A. Saddle

  B. Lead rope

  C. Halter

II. Procedures

  A. Halter horse

  B. Tie horse

  C. Approach horse from shoulder on left side

  D. Smooth hair over back

  E. With one hand on pommel and the other on cantle, place saddle on withers

  F. Slide saddle back to correct position

  G. Make sure sweat flaps are not curled

  H. Straighten girth

  I. Slide girth through martingale loop and buckle up loosely

  J. Lead horse around

  K. Retighten girth

COMPANION ANIMAL EQUIPMENT
UNIT XI
JOB SHEET #2—BRIDLE A HORSE

I. Equipment

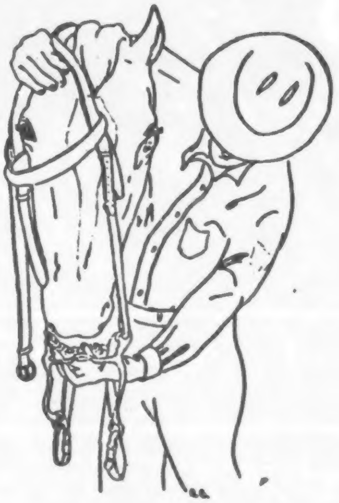
   A. Horse

   B. Bridle

II. Procedure

   A. Bridle in position

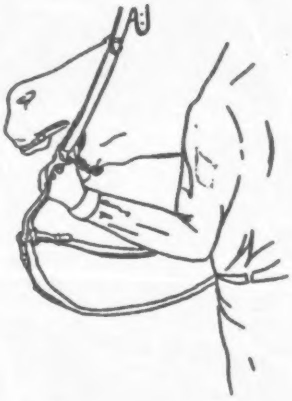
      1. Place nose between check piece (Figure 1)



      2. Position crown piece in front of ear

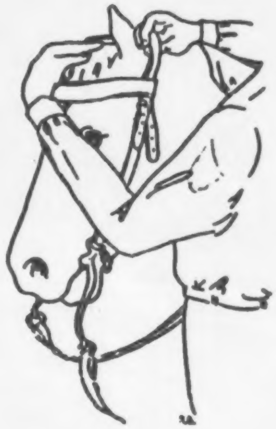
      3. Dangle bit against teeth

   B. Open mouth (Figure 2)

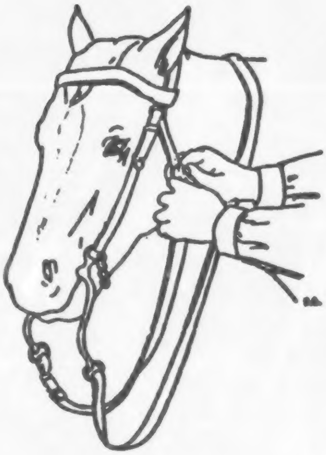


C. Bridle on

1. Bit in mouth
2. Crown piece over ear (Figure 3)



D. Throat latch buckled



COMPANION ANIMAL EQUIPMENT
UNIT XI

JOB SHEET #3—MOUNT A HORSE

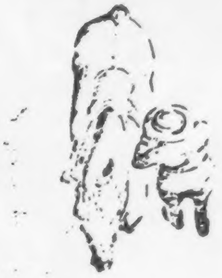
I. Equipment or tools

- A. Horse
- B. Saddle
- C. Bridle
- D. Corral

II. Procedure

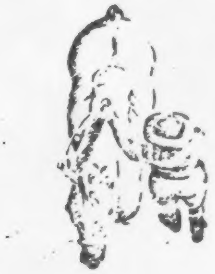
- A. Mount from near or left side (Figure 1)

Figure 1



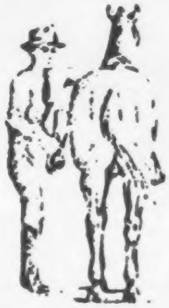
- B. Gather reins in left hand (Figure 2)

Figure 2



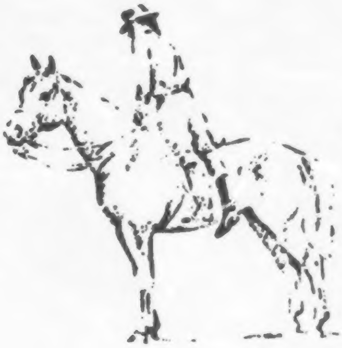
C. Steady stirrup with right hand (Figure 3)

Figure 3



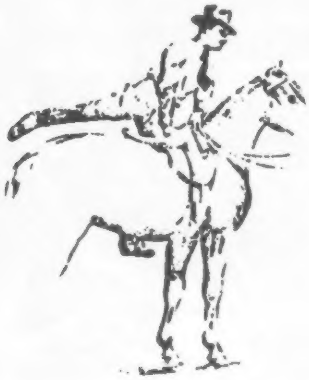
D. Pause momentarily in standing position (Figure 4)

Figure 4



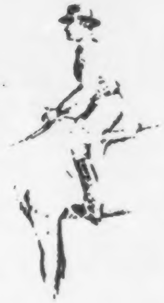
E. Swing right leg over horse's back (Figure 5)

Figure 5



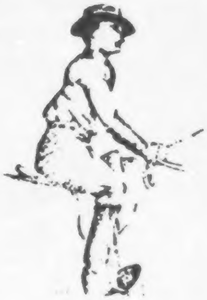
F. Ease down into the saddle (Figure 6)

Figure 6



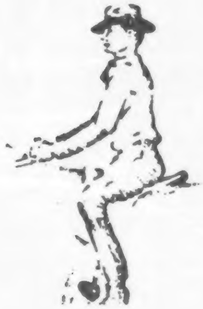
G. Secure right stirrup without looking down (Figure 7)

Figure 7



H. Sit easily with head up and heels down (Figure 8)

Figure 8



COMPANION ANIMAL EQUIPMENT
UNIT XI

TEST

1. Match the terms on the right to the correct definition.

____ a. Braided rawhide or rope noseband of a bosal hackamore; knotted under the horse's jaw

____ b. Act of getting on a horse

____ C. Membranes of the bars of the mouth where the bit rests have become toughened and nerves deadened because of pressure of the bit

____ d. Part of the reins passing between thumb and fingers and out the top of the hand

____ e. Horse that pulls back on the halter rope

____ f. Term that describes the horse's playing with the bit

____ g. Girth of a western saddle

____ h. Bit with prongs extending at the nose to tip horse's head up

____ i. Cleaning with a curry comb

1. Bight of the reins
2. Bosal
3. Champing
4. Cinch
5. Crab bit
6. Curry
7. Halter puller
8. Hard mouthed
9. Mounting

2. Identify the following equipment used to groom a horse. Write the correct names in the blanks provided

a.

b.

c.

d.

e.

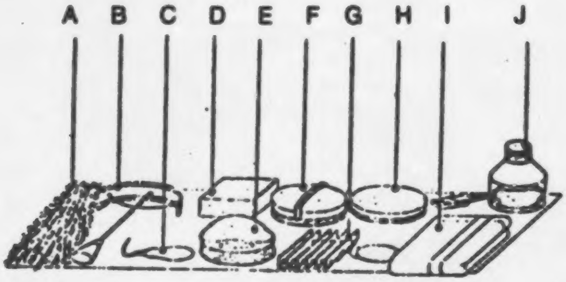
f.

g.

h.

i.

j.



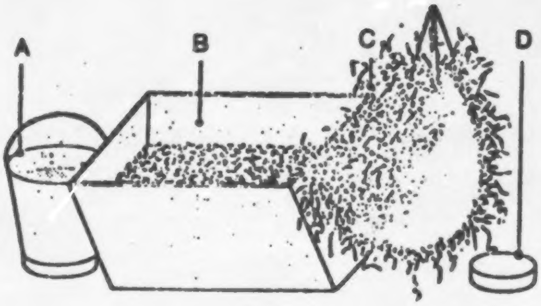
3. Identify the feeding equipment pictured below.

a.

b.

c.

d.



4. Identify the parts of the Western saddle as shown in the picture below.

a.

b.

c.

d.

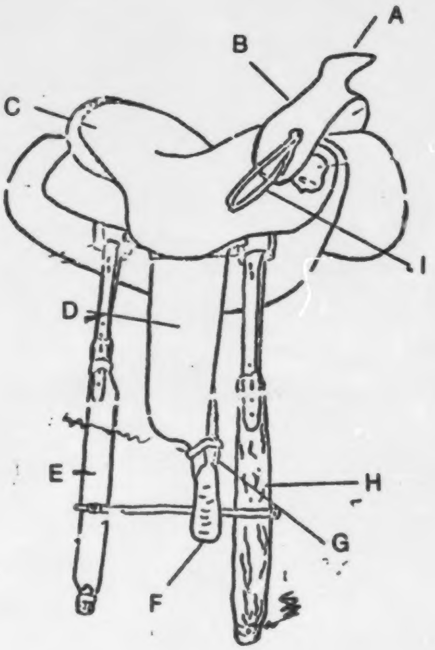
e.

f.

g.

h.

i.



5. Identify the parts of the bridle as shown in the picture below.

a.

b.

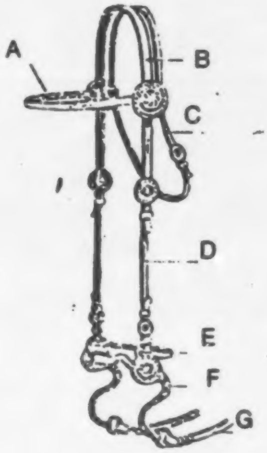
c.

d.

e.

f.

g.

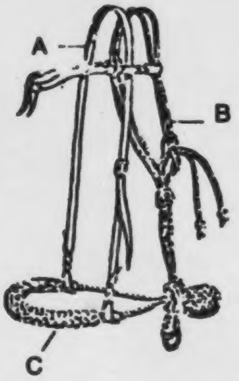


6. Identify the three parts of the hackmore shown below.

a.

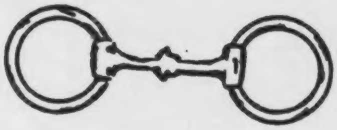
b.

c.

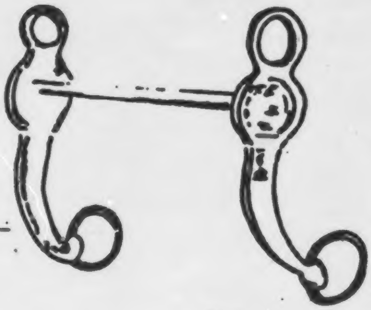


7. Identify the bits shown below.

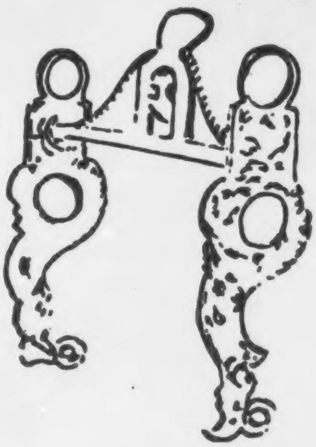
a. ______________________________



b. ______________________________

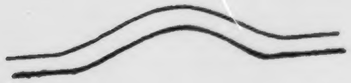


c. ______________________________

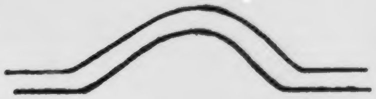


8. Identify the types of mouthpieces below.

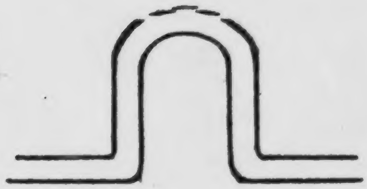
a. ______________________________



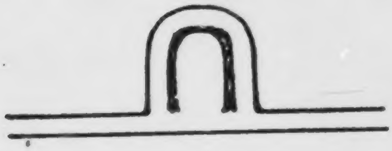
b. ______________________________



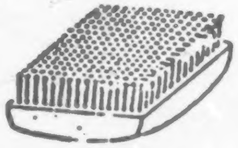
c. ______________________________



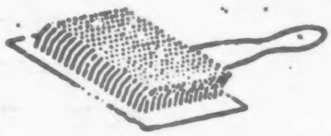
d. ______________________________



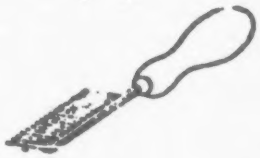
9. Identify the dog grooming equipment shown below.



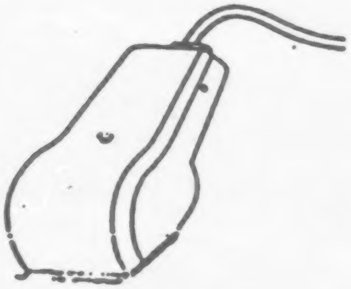
a. ______________________________



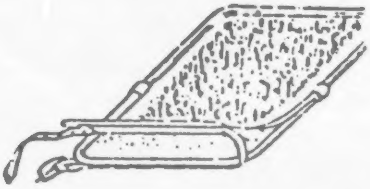
b. ______________________________



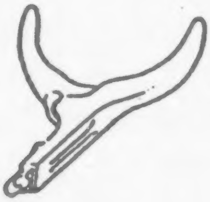
c. ______________________________



d. ______________________________



e. ______________________________



f. ______________________________

10. List the equipment used to bathe a dog.

    a.

    b.

    c.

    d.

11. List the exercising equipment for a dog.

    a.

    b.

    c.

    d.

    e.

    f.

12. List four pieces of cat equipment.

    a.

    b.

    c.

    d.

13. Demonstrate the ability to:

    a. Saddle a horse.

    b. Bridle a horse.

    c. Mount a horse.

COMPANION ANIMAL EQUIPMENT
UNIT XI

ANSWERS TO TEST

1. a. 2
   c. 9
   c. 8
   d. 1
   e. 7
   f. 3
   g. 4
   h. 5
   i. 6
   i. 6
2. a. Handful of straw
   b. Sweat scraper
   c. Sponge
   e. Dandy brush
   f. Body brush
   g. Curry comb
   h. Dry water brush
   i. Stable rubber
   j. Hoof oil
3. a. Galvinized 5 gal. bucket
   b. Wooden feed bunk
   c. Hay net
   d. Salt block
4. a. Horn
   b. Cantle
   d. Fender

   e. Cinch
   f. Stirrup
   g. Stirrup leather
   h. Girth
   i. Rope strap

5. a. Browband
   b. Crownpiece
   c. Throatlatch
   d. Cheekpiece
   e. Curb strap
   f. Bit
   g. Reins

6. a. Headstall
   b. Fiador
   c. Bosal

7. a. Snaffle
   b. Curb bit
   c. Spade

8. a. Low port
   b. Medium port
   c. High port
   d. Half breed

9. a. Brush for dogs with wiry or medium length coats
   b. Slicker—Ideal for long-haired dogs
   c. Metal comb
   d. Electric clippers

e. Hound glove for smooth-haired dogs

f. Nail clippers

10. a. Pitcher for rinsing

b. Towels

c. Mild shampoo

d. Vegetable oil and eyedropper

11. a. Flat leather collar

b. Rounded leather collar

c. Choke chain and chain leash

d. Leather leash

e. Harness

f. Coat

12. Any four of the following:

a. Grooming

    1) Brush with wire slicker

    2) Scissors

    3) Nail clippers

b. Housing and toys

    1) Litter pan

    2) Litter

    3) Scratching post

    4) String

    5) Ping-pong ball

    6) Empty sewing thread spool

    7) Catnip mouse

13. Performance skills evaluated to satisfaction of instructor.